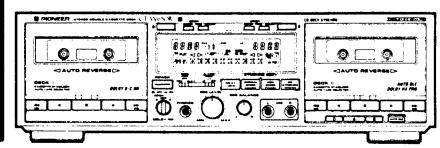
PIONEER®
The Art of Entertainment

Service Manual



ORDER NO.
ARP2207

STEREO DOUBLE CASSETTE DECK

CT-W650R
CT-W550R
CT-W550R-S

CT-W650R, CT-W550R AND CT-W550R-S HAVE THE FOLLOWING:

Type	Model			Power Requirement	Remarks
	CT-W650R	CT-W550R	CT-W550R-S		
KUC	○	○	–	AC120V only	
HEM	○	○	–	AC220V–230V, 230V–240V (switchable) *	
HB	○	○	–	AC220V–230V, 230V–240V (switchable) *	
HPW	–	○	–	AC220V–230V, 230V–240V (switchable) *	
HEWM	–	–	○	AC220V–230V, 230V–240V (switchable) *	
SD	○	○	–	AC110V, 120V–127V, 220V, 240V (switchable)	

*Change the primary wiring of the power transformer.

- **This manual is applicable to the CT-W650R/KUC, HEM, HB, SD, CT-W550R/KUC, HEM, HB, HPW, SD and CT-W550R-S/HEWM types.**
- **As to the CT-W650R/HEM, HB, SD, CT-W550R/KUC, HEM, HB, HPW, SD and CT-W550R-S/HEWM types, refer to page 44–48.**
- **Ce manuel pour le service comprend les explications de réglage en français.**
- **Este manual de servicio trata del método ajuste escrito en español.**

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CT-W650R, CT-W550R

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This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

1. SAFETY INFORMATION

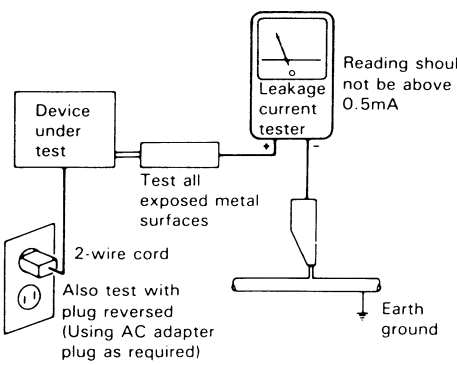
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

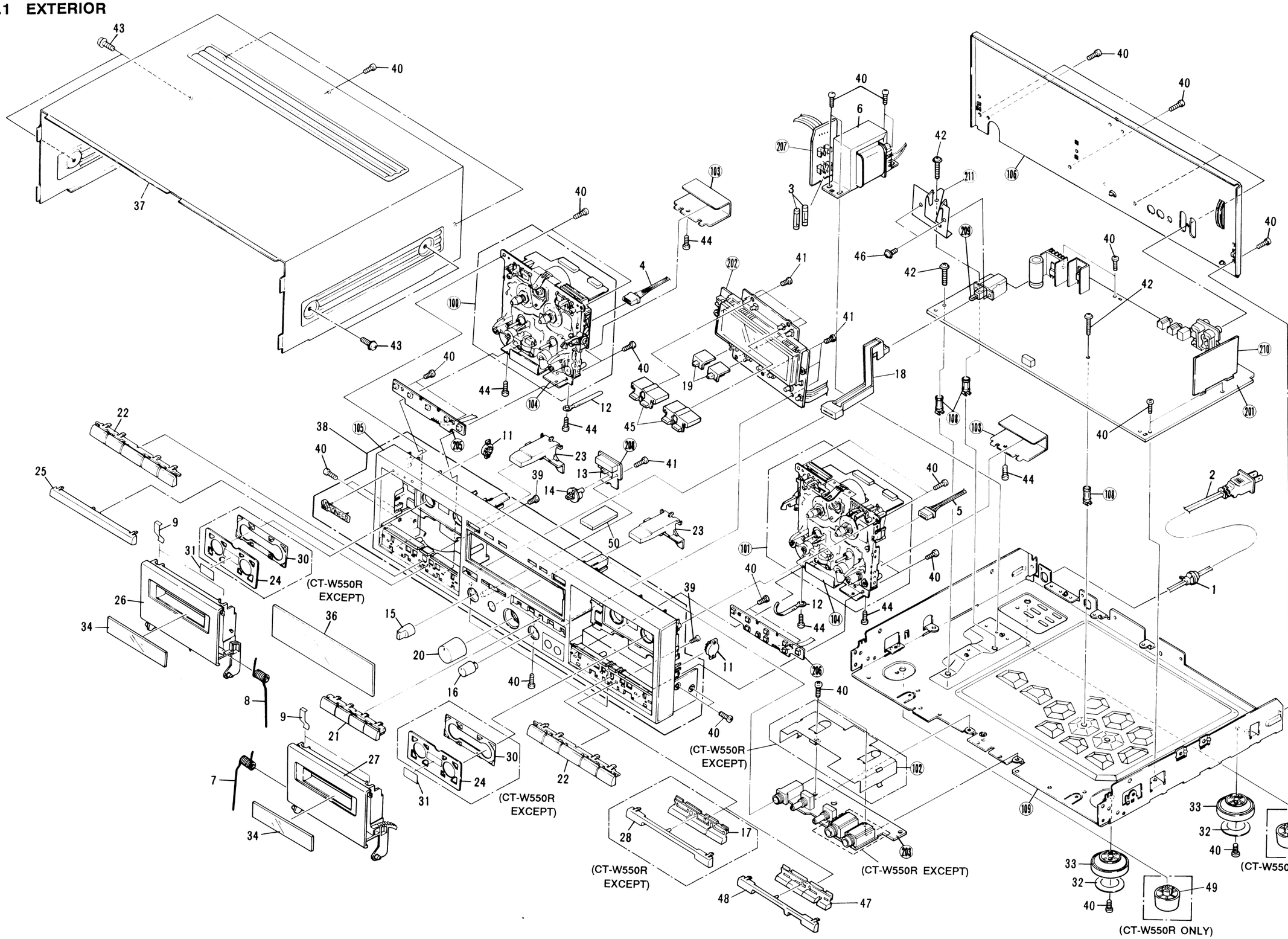
Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. EXPLODED VIEWS AND PARTS LIST

2.1 EXTERIOR

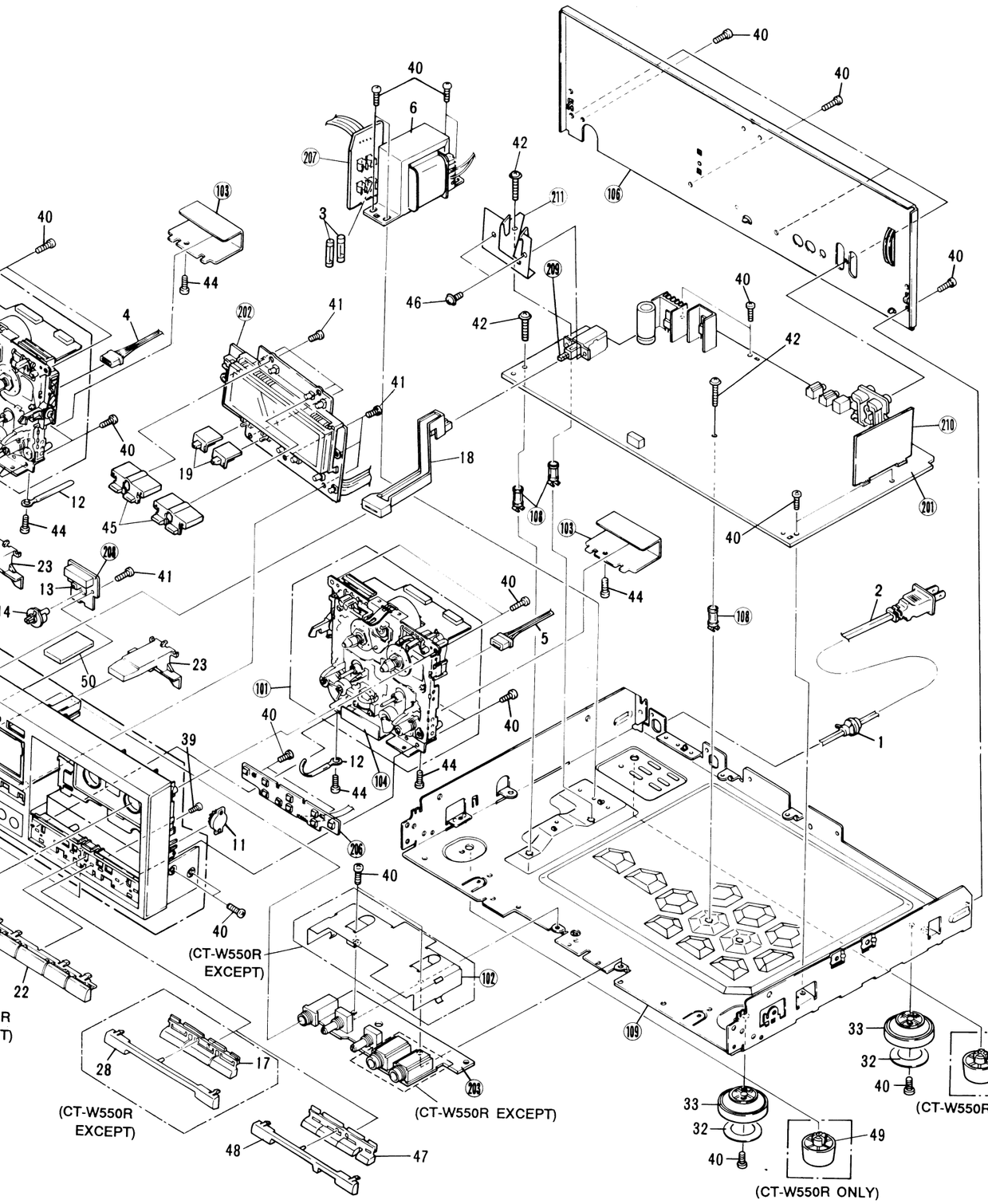


NOTES:

- Parts without pa
- The ⚠ mark fou
  to use parts of id
- Parts marked by

Parts List of

Mark	No.	
⚠	1	Str
⚠	2	AC
⚠	3	FU
		Fus
⚠	4	Cor
⚠	5	Cor
⚠	6	Pov
	7	Doo
	8	Doo
	9	Hal
	10	···
	11	Dar
	12	Cor
	13	SW
	14	Rot
	15	Kn
	16	VR
	17	Ope
		(Fo
	18	Pov
	19	Slic
	20	VR
	21	Ope
	22	Ope
	23	Eje
	24	Sta
		(Fo
	25	REC
	26	Doo
		(Fo
		Doo
		(Fo
	27	Doo
		(Fo
		Doo
		(Fo
	28	REC
		(Fo
	29	···
	30	Sta
		(Fo
	31	Rer
	32	Sto
		(Fo
	33	Insu
		(Fo
	34	Doo
	35	···



NOTES:

- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Parts List of Exterior

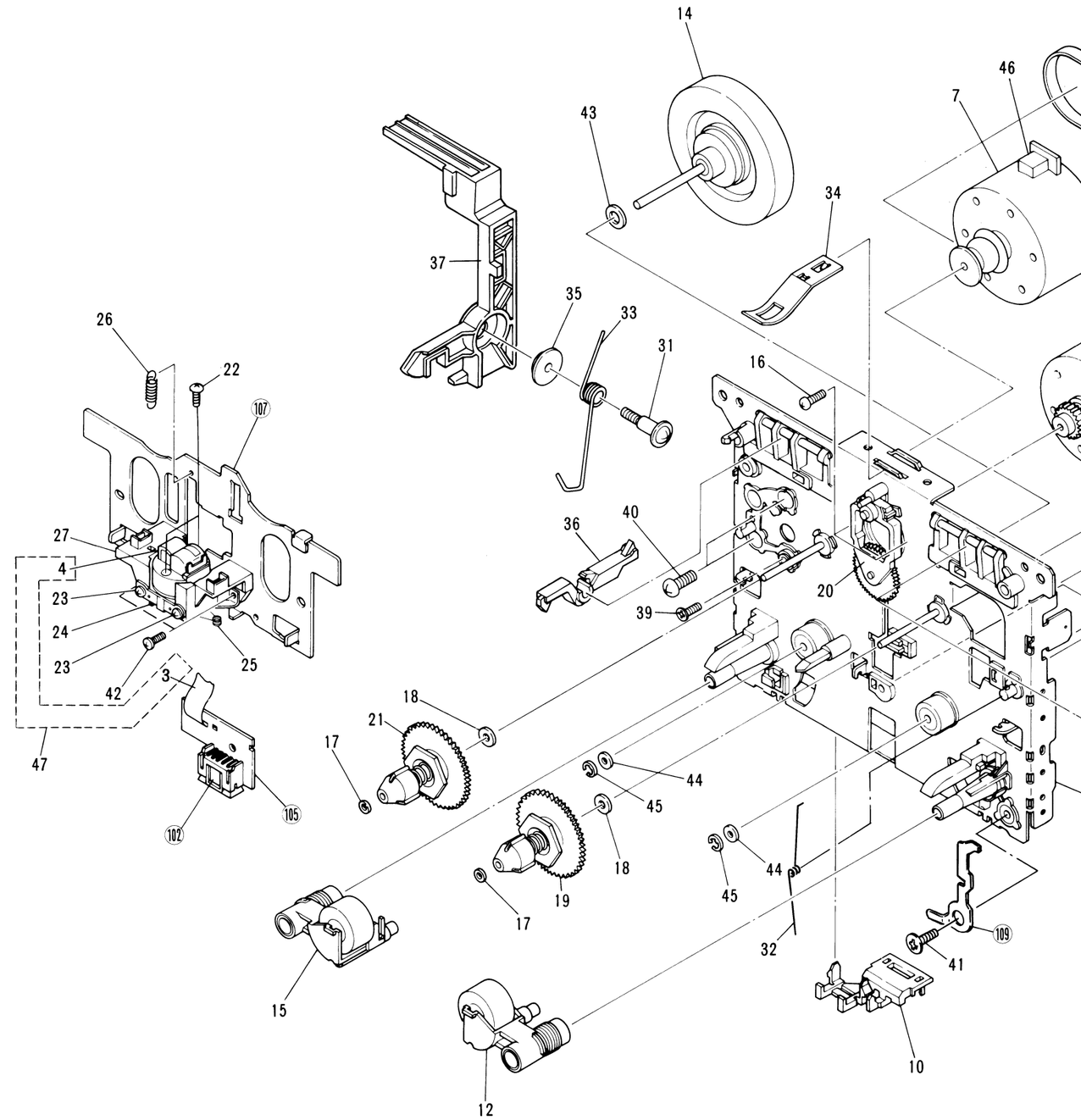
Mark	No.	Description	Part No.
⚠	1	Strain relief	CM – 22
⚠	2	AC power cord	RDG1010
⚠	3	FU1801, FU1802 Fuse (1.5A)	REK1001
⚠	4	Connector assembly 3P	RKP1322
⚠	5	Connector assembly 6P	RKP1402
⚠	6	Power transformer	RTT1165
	7	Door spring (L)	RBH1254
	8	Door spring (R)	RBH1255
	9	Half pressure spring	RBK1004
	10	·····	
	11	Damper assembly	REC1005
	12	Cord clamper	RNH – 184
	13	SW cap	RNK1522
	14	Rotary SW shaft	RNK1523
	15	Knob (B)	RAC1414
	16	VR knob (B)	RAC1421
	17	Operation knob (B) (For CT – W550R)	RAC1424
	18	Power knob	RAC1427
	19	Slide knob	RAC1428
	20	VR knob (A)	RAC1430
	21	Operation knob (C)	RAC1475
	22	Operation knob (A)	RAC1479
	23	Eject knob	RAC1480
	24	Stabilizer panel (For CT – W650R)	RAH1483
	25	REC mold (L)	RAH1608
	26	Door pocket (L) (For CT – W650R)	RAH1828
		Door pocket (L) (For CT – W550R)	RHA1831
	27	Door pocket (R) (For CT – W650R)	RAH1829
		Door pocket (R) (For CT – W550R)	RHA1832
	28	REC mold (For CT – W550R)	RAH1611
	29	·····	
	30	Stabilizer (B) (For CT – W650R)	REB1085
	31	Remain display paper	REE – 113
	32	Stopper (For CT – W650R)	VEC1061
	33	Insulator (For CT – W650R)	VNK1095
	34	Door lens	RAH1622
	35	·····	
	36	FL lens	RAH1830
	37	Bonnet	RXX1396
	38	Front panel assembly (For CT – W650R)	RXX1374
		Front panel assembly (For CT – W550R)	RXX1372
	39	Screw	BBZ20P080FMC
	40	Screw	BBZ30P080FMC
	41	Screw	BBZ30P100FZK
	42	Screw	IBZ30P150FCU
	43	Screw	FBT40P080FZK
	44	Screw	BCZ26P050FMC
	45	Counter knob	RAC1426
	46	Screw	PMA30P060FCU
	47	BLE knob (For CT – W650R)	RAC1601
	48	BLE mold (For CT – W650R)	RAH1729
	49	Leg assembly (For CT – W550R/KUC)	PXA1201
	50	Spacer	REC1092
	100	Mechanism unit	
	101	Mechanism unit	
	102	Shield case (For CT-W650R)	
	103	Mechanism shield plate	
	104	Mechanism bracket	
	105	Front panel	
	106	Rear panel	
	107	·····	
	108	PCB spacer	
	109	Main chassis (FE)	
	110	·····	
	201	Main unit	
	202	Display unit	
	203	Volume unit	
	204	·····	
	205	Control SW (1) unit	
	206	Control SW (2) unit	
	207	Transformer 2 unit	
	208	Switch unit	
	209	Regulator unit	
	210	REC unit	
	211	SW bracket	

2.2 MECHANISM UNIT (DECK I)

Parts List of Mechanism Unit (Deck I)

Mark	No.	Description	Part No.
	1	Shaft	RLA1130
	2	Plunger	RLA1132
	3	HD FPC (PB)	RNP1235
	4	PB head	RPB1031
	5	Push switch	RSG1018
	6	Motor assembly	RXM1029
	7	Motor assembly (Main)	RXM1030
	8	Solenoid	RXP1010
	9	Photo transistor	SPI33534FG
	10	Wire holder	RNK1530
	11	Main belt	REB1157
	12	Pinch roller assembly	RXA1183
	13	Flywheel assembly	RXA1294
	14	Flywheel assembly	RXA1295
	15	Pinch roller assembly(L)	RXA1296
	16	Screw	RBA1076
	17	Washer	RBF – 057
	18	Washer	RBF1038
	19	TU reel assembly	RXA1184
	20	Idler assembly	RXA1248
	21	TU reel assembly	RXC – 040
	22	Screw	PMZ14P050FNI
	23	Azimuth screw	RBA1080
	24	Azimuth spring	RBK1029
	25	Rotation spring	RBL – 085
	26	Head base spring	RBL1003
	27	Head housing assembly	RXA1293
	28	Slide spring	RBH1239
	29	Play arm	RNK1525
	30	Cam gear	RNK1672
	31	Screw	RBA1078
	32	Eject prevention spring (R)	RBH1230
	33	Eject lever spring (R)	RBH1264
	34	Cassette hold spring	RBK1030
	35	Lever collar (B)	RLA1146
	36	REC detection lever	RNK1527
	37	Eject lever (R)	RNK1594
	38	PACK detection lever(P)	RNK1543
	39	Screw	PBZ30P080FMC
	40	Screw	PMZ26P050FMC
	41	Screw	RBA1048
	42	Screw	RBA1077
	43	Washer	WA26D045D025
	44	Washer	WA26D047D050
	45	Washer	YE15FUC
	46	Holder cushion (L)	RED1027
	47	Head assembly (PB)	RXA1402
	100	Tripe – conductor jumper wire	
	101	Connector (10P)	
	102	Connector (3P)	
	103	Connector (4P)	
	104	P.C. board	
	105	Head P.C.B	
	106	Chassis assembly	RXA1291
	107	Head base	
	108	Slide plate	RNE1345
	109	Eject prevention arm (R)	

※ The head assembly (PB) in No. 47 is a component of Nos. 3 and 4 and can be supplied as service.



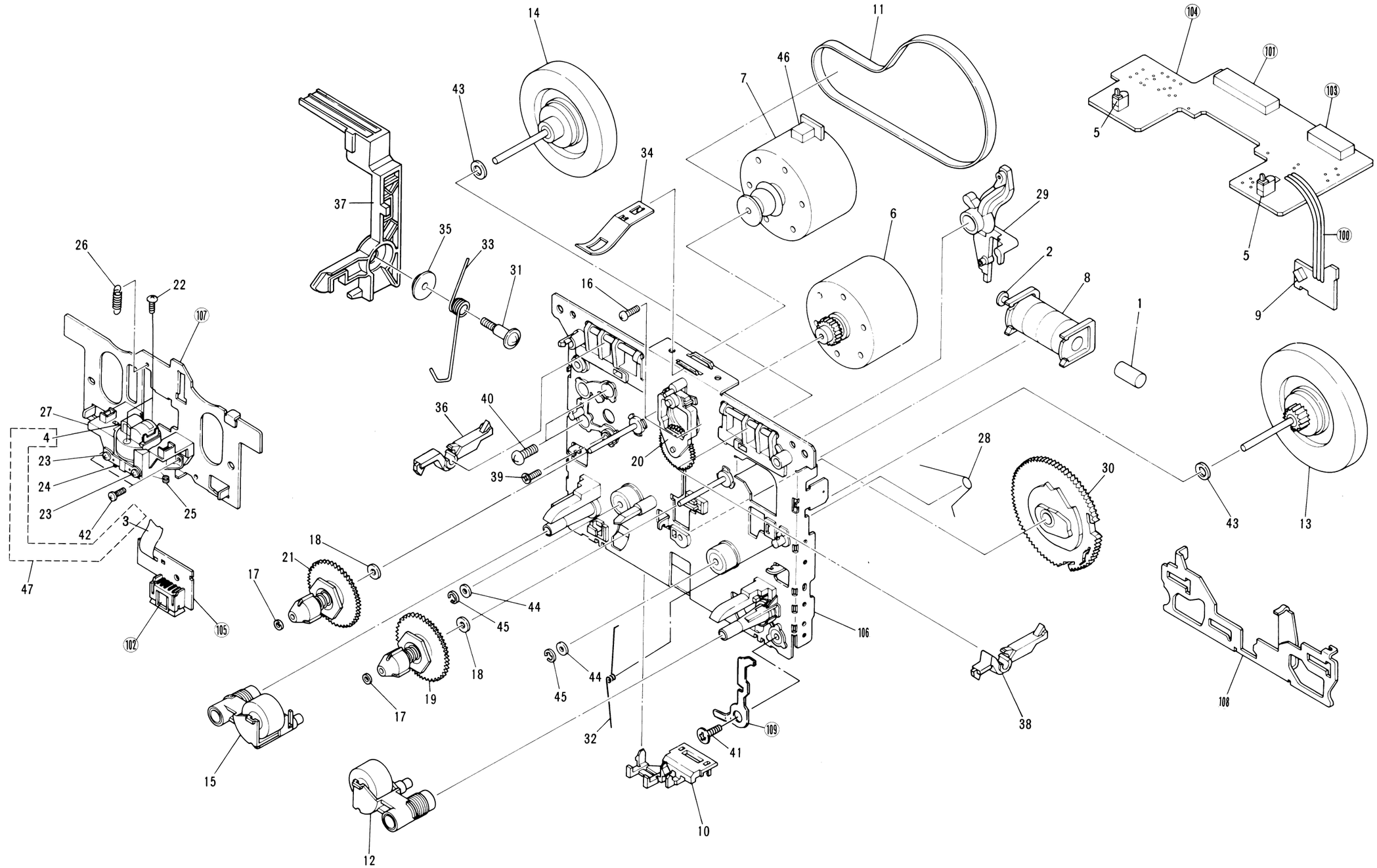
Mechanism Unit (Deck I)

Part No.

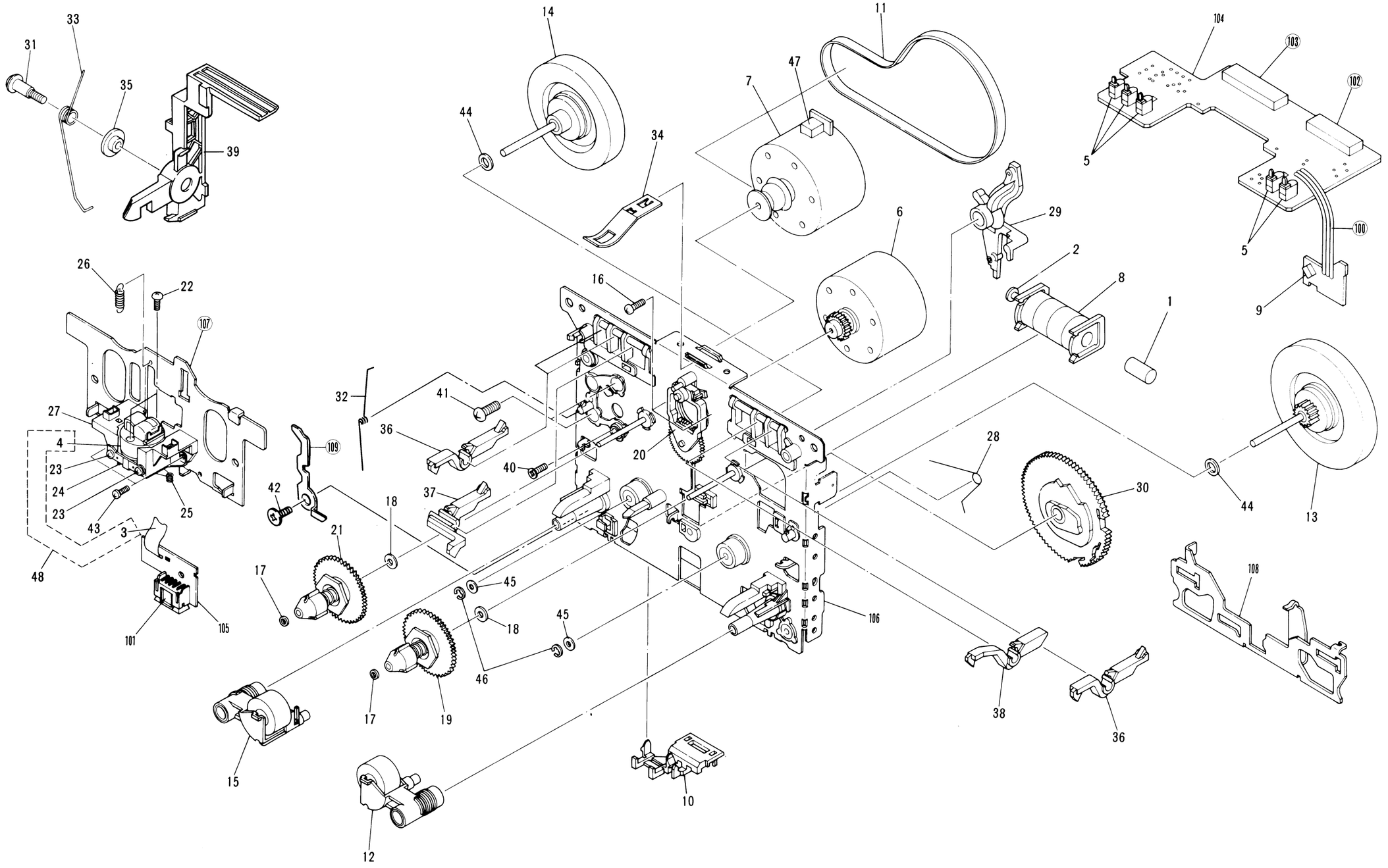
XA1291

NE1345

omponent of Nos.
ce.

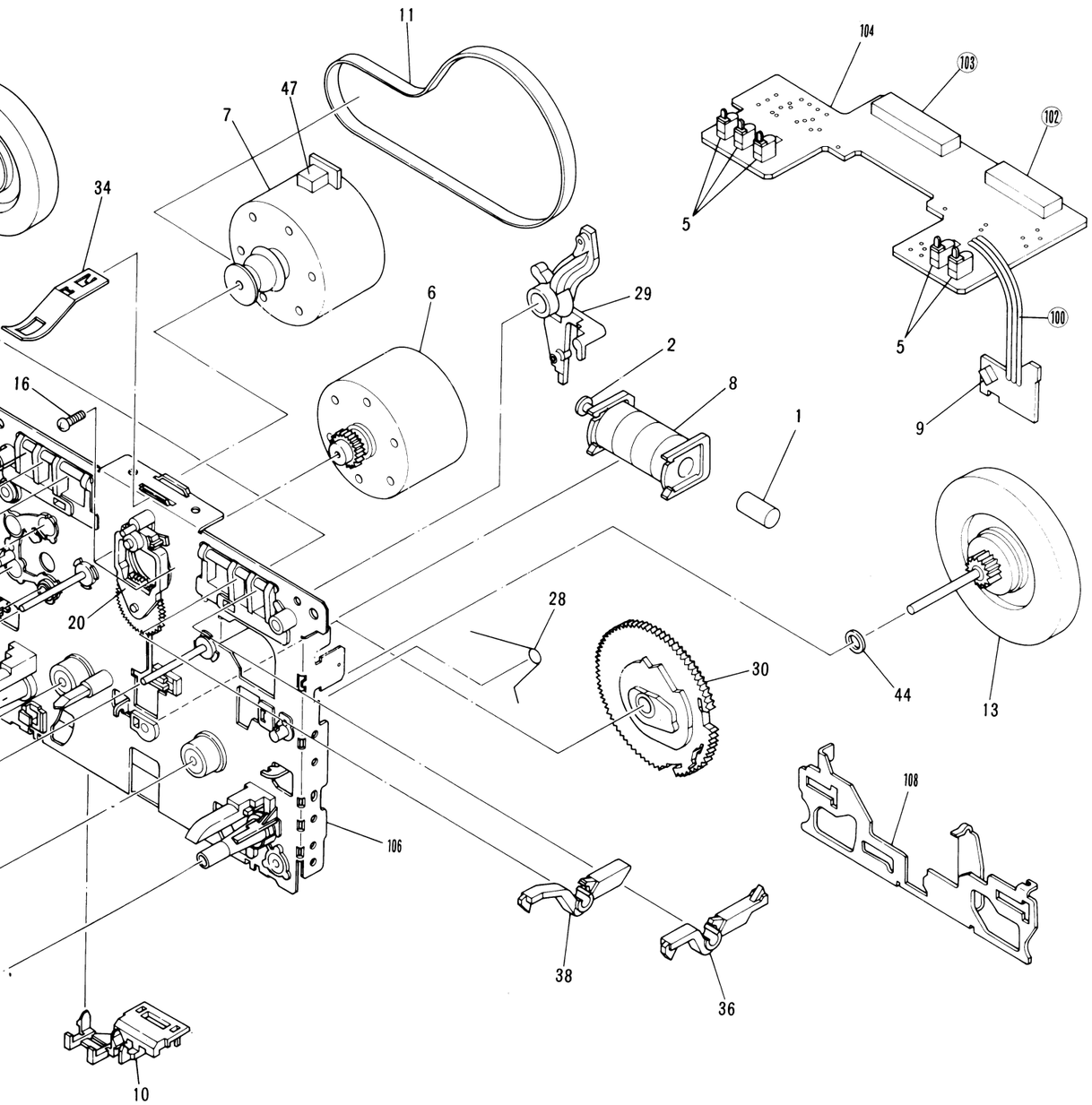


2.2 MECHANISM UNIT (DECK II)



Parts List

Mark	No.
A	1
	2
	3
	4
	5
	6
	7
	8
	9
	10
	11
	12
	13
	14
	15
B	16
	17
	18
	19
	20
	21
	22
	23
	24
	25
	26
	27
	28
	29
	30
	31
C	32
	33
	34
	35
	36
	37
	38
	39
	40
	41
	42
	43
	44
	45
	46
	47
D	48



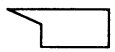
Parts List of Mechanism Unit (Deck II)

Mark	No.	Description	Part No.
	1	Shaft	RLA1130
	2	Planger	RLA1132
	3	HD FPC (R/P)	RNP1232
	4	R/P, E head	RPB1030
	5	Push switch	RSG1018
	6	Motor assembly	RXM1029
	7	Motor assembly (Main)	RXM1030
	8	Solenoid	RXP1010
	9	Photo transistor	SPI33534FG
	10	Wire holder	RNK1530
	11	Main belt	REB1157
	12	Pinch roller assembly	RXA1183
	13	Flywheel assembly	RXA1294
	14	Flywheel assembly	RXA1295
	15	Pinch roller assembly(L)	RXA1296
	16	Screw	RBA1076
	17	Washer	RBF – 057
	18	Washer	RBF1038
	19	TU reel assembly	RXA1184
	20	Idler assembly	RXA1248
	21	TU reel assembly	RXC – 040
	22	Screw	PMZ14P050FNI
	23	Azimuth screw	RBA1080
	24	Azimuth spring	RBK1029
	25	Rotation spring	RBL – 085
	26	Head base spring	RBL1003
	27	Head housing assembly	RXA1293
	28	Slide spring	RBH1239
	29	Play arm	RNK1525
	30	Cam gear	RNK1672
	31	Screw	RBA1078
	32	Eject prevention spring (L)	RBH1234
	33	Eject lever spring (L)	RBH1262
	34	Cassette hold spring	RBK1030
	35	Lever collar (B)	RLA1146
	36	REC detection lever	RNK1527
	37	Metal detection lever(L)	RNK1529
	38	PACK detection lever(P)	RNK1543
	39	Eject lever (L)	RNK1593
	40	Screw	PBZ30P080FMC
	41	Screw	PMZ26P050FMC
	42	Screw	RBA1048
	43	Screw	RBA1077
	44	Washer	WA26D045D025
	45	Washer	WA26D047D050
	46	Washer	YE15FUC
	47	Holder cushion (L)	RED1027
	48	Head assembly (R/P)	RXA1378
	100	Tripe – conductor jumper wire	
	101	Connector (6P)	RKP1401
	102	Connector (7P)	
	103	Connector (10P)	
	104	P.C. board	RNP1279
	105	Head P.C.B (R/P)	RNP1351
	106	Chassis assembly	RXA1291
	107	Head base	
	108	Slide plate	RNE1345
	109	Eject prevention arm (L)	

※ The head assembly (R/P) in No. 48 is a component of Nos. 3 and 4 and can be supplied as service.

1. RESISTORS :
   Indicated in Ω, 1/4W, 1/6W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K); ±10%, (M); ±20% tolerance.

2. CAPACITORS :
   Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF.
   Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE CURRENT :
    ; DC voltage (V) at no input signal.
   ⬅mA ; DC current at no input signal.

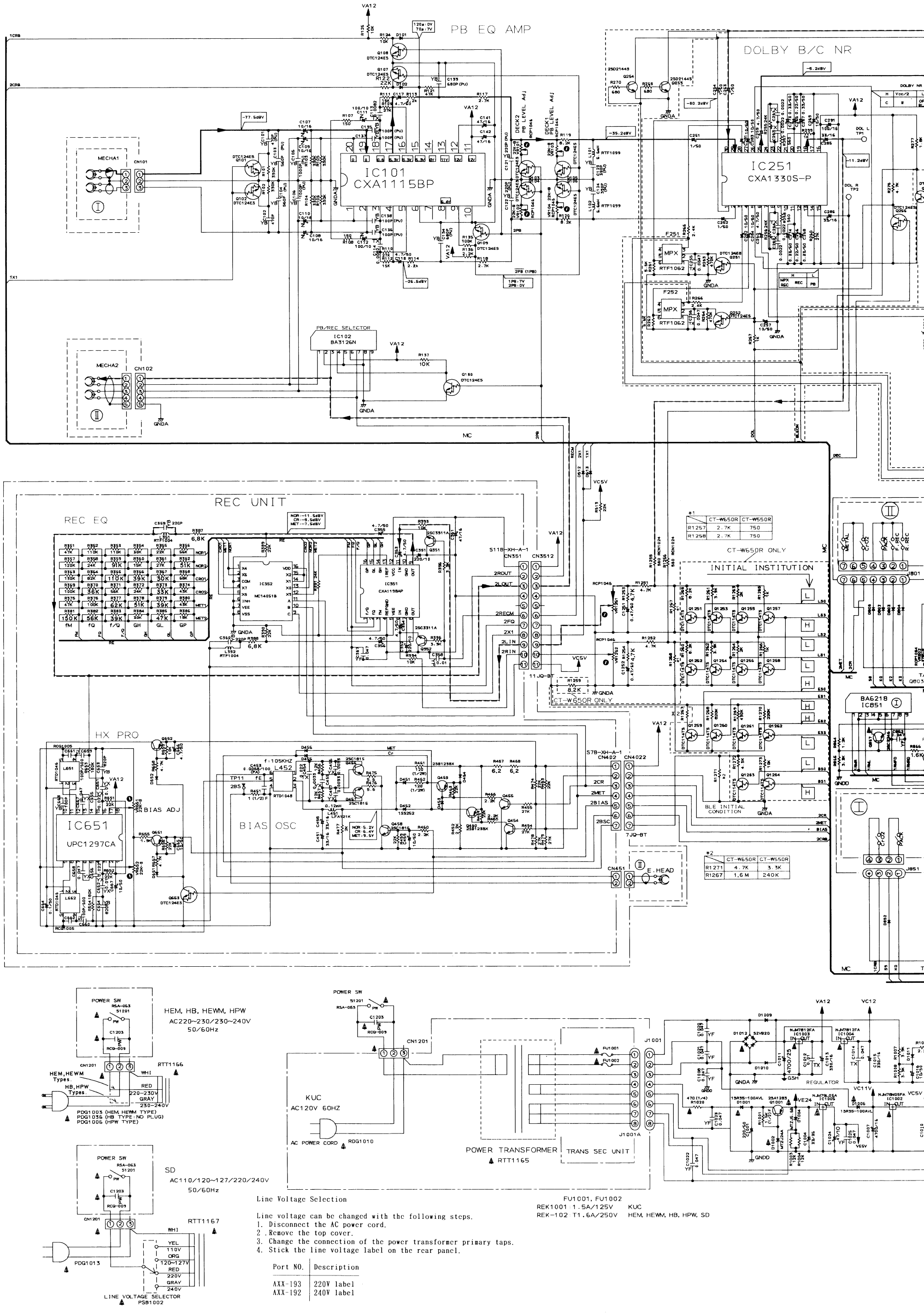
4. OTHERS :
   ➡ ; Signal route.
   ⊘ ; Adjusting point.
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   ※ marked capacitors and resistors have parts numbers.

   This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

5. SWITCHES (Underline indicates switch position)
   DISPLAY UNIT
   S1501 : CD CYNC
   S1503 : X2 COPY
   S1504 : X1 COPY
   S1505 : MODE 2 – COUNTER
   S1506 : RESET 2 – COUNTER
   S1507 : MODE 1 – COUNTER
   S1508 : RESET 1 – COUNTER
   S1509 : SKIP/RELY
   S1510 : REV MODE ⇄ – <u>⮌</u> – ⮎
   S1511 : TIMER REC – <u>OFF</u> – PLAY

   DLBY SW UNIT
   S1520 : B – <u>OFF</u> – C

3. SCHEMATIC DIAGRAM



*1	CT-W650R	CT-W550R
R1257	2.7K	750
R1258	2.7K	750

*2	CT-W650R	CT-W550R
R1271	4.7K	3.3K
R1267	1.6M	240K

Line Voltage Selection

Line voltage can be changed with the following steps.
1. Disconnect the AC power cord.
2. Remove the top cover.
3. Change the connection of the power transformer primary taps.
4. Stick the line voltage label on the rear panel.

Port NO.	Description
AXX-193	220V label
AXX-192	240V label

FU1001, FU1002
REK1001 1.5A/125V KUC
REK-102 T1.6A/250V HEM, HEWM, HB, HPW, SD

INPUT BUFFER

VOLUME UNIT

MIC AMP

H.PHONE AMP

METER AMP

MAIN UNIT

MS

CT-W650R ONLY

400Hz L.P.F

400Hz LEVEL ADJ.

10kHz LEVEL ADJ.

10kHz Buffer AMP

SYSTEM CONTROL

IC501 PD4314A

TC4066BP

TC4050BP IC1701

BA15218N IC504 (1/2)

BA15218 IC1602 (1/2)

BA6218 IC851

BA6218 IC801

TAPE SPEED ADJ Q803-Q805:C.M DRIVE

C.M DRIVE

R.M DRIVE

Q806 SENS

Q801, Q802 SOL DRIVE

RESET

CD SYNC.

SR

DISPLAY UNIT

FL V1501

RAW1082 CT-W650R/KU, SD

RAW1074 CT-W650R/HEM. HB

RAW1083 CT-W550R

DOLBY SW UNIT

S1501~1509:RSG1034

S1301~1309:RSG1033

S1401~1409:RSG1033

OPERATE1 UNIT

OPERATE2 UNIT CT-W650R ONLY

CT-W550R ONLY

CT-W650R ONLY

NOTE: If the parts are not identified in the the diagram, the followings are used.

1SS254

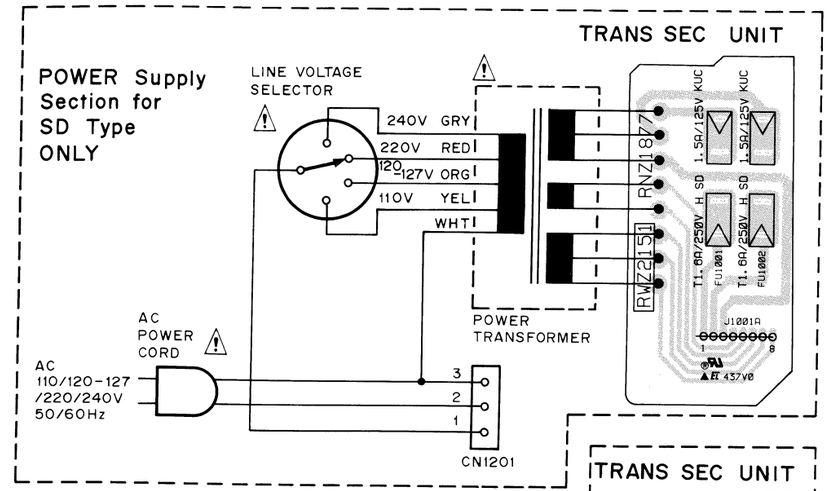
2SA1309A

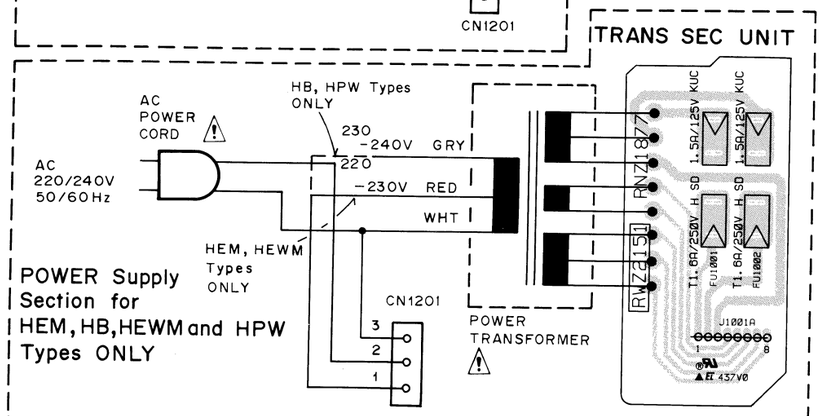
2SC3311A

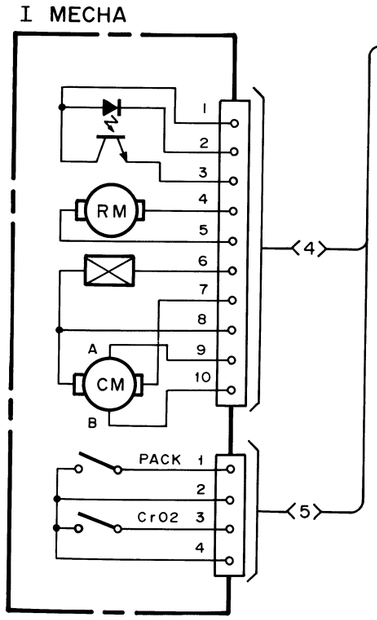
PLAYBACK SIGNAL

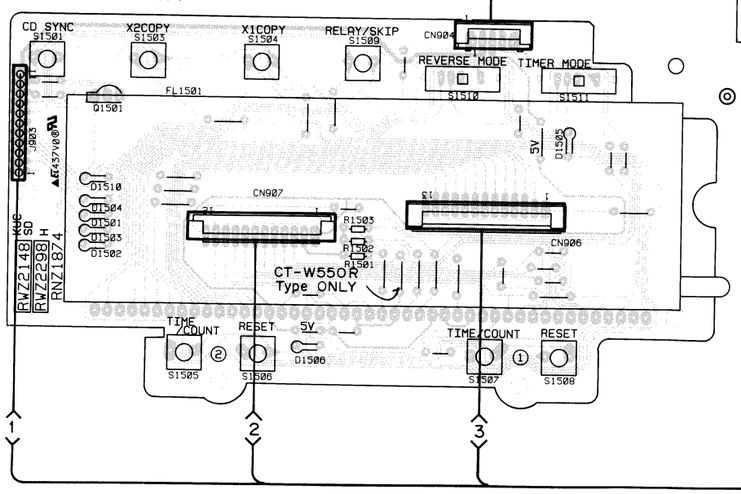
RECORDING SIGNAL

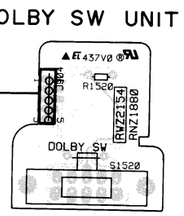
4. P.C. BOARDS CONNECTION DIAGRAM

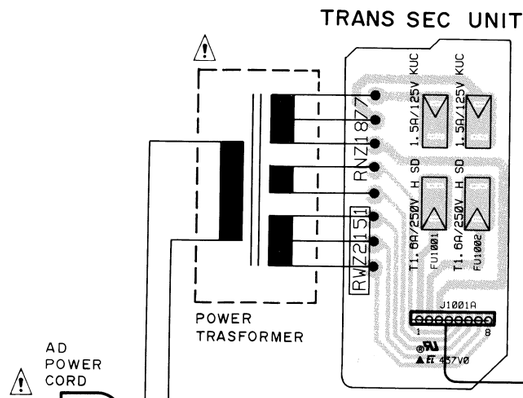


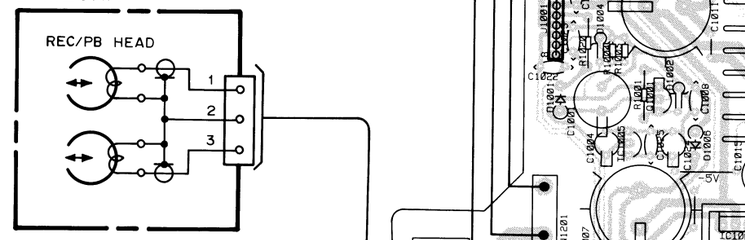


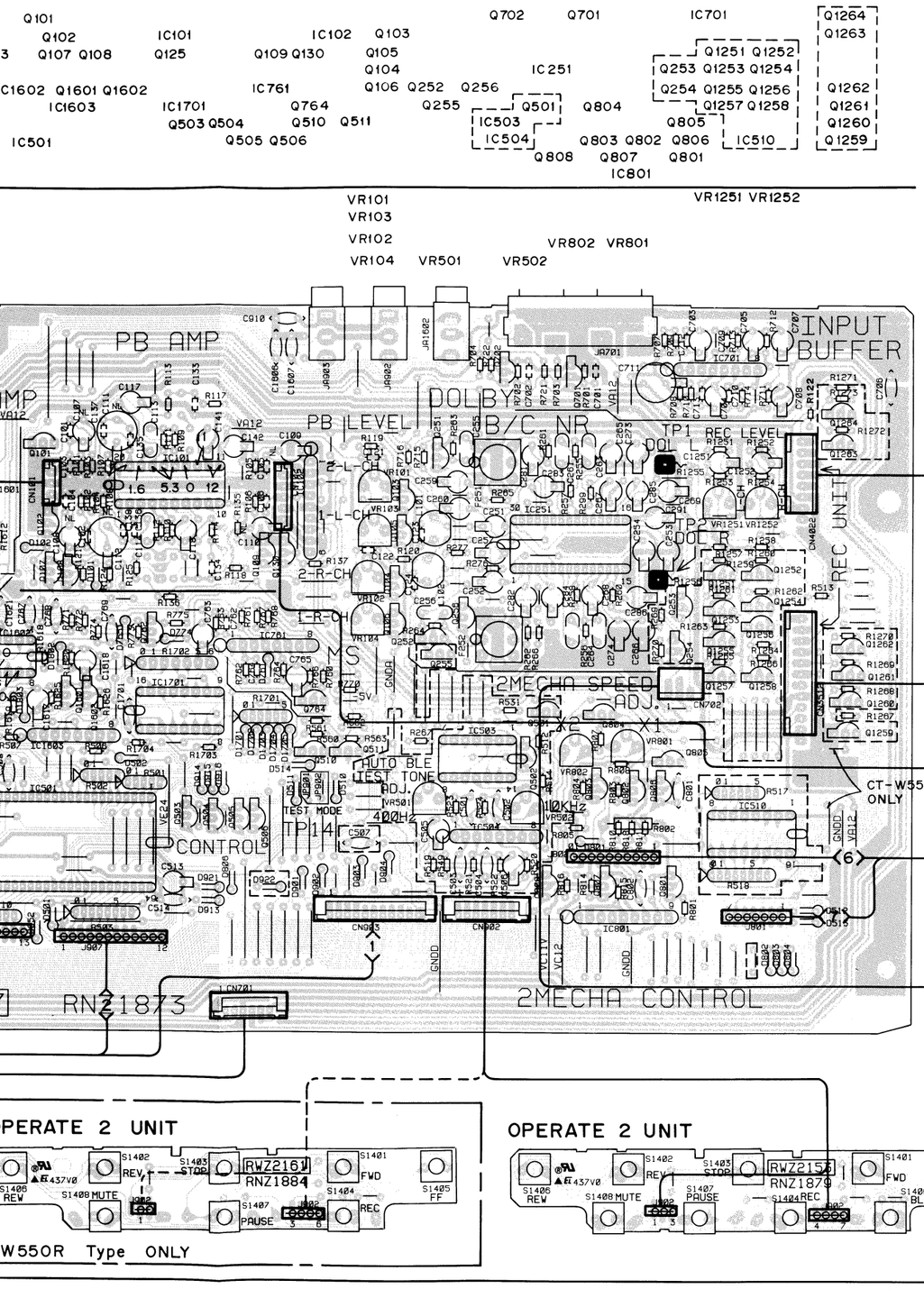




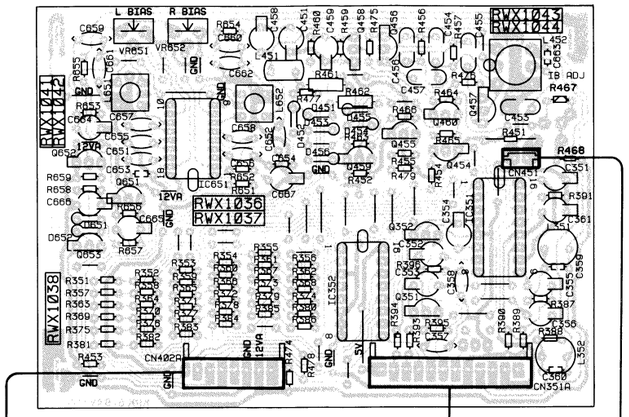




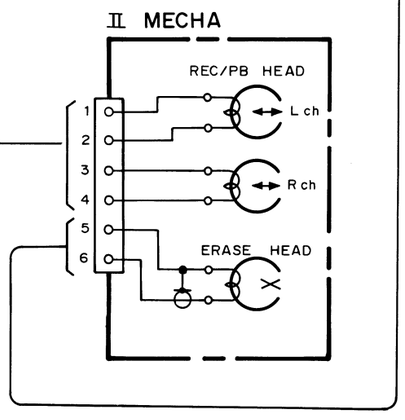




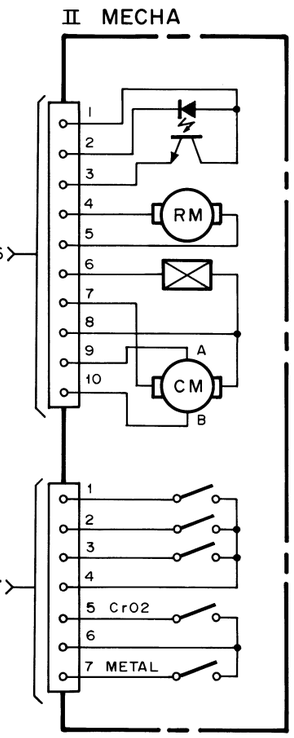
REC UNIT



II MECHA

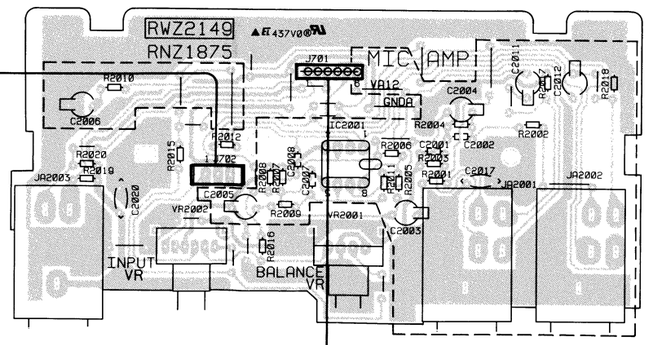


II MECHA



NOTE
[ ]; CT-W650R Type ONLY

VOLUME UNIT



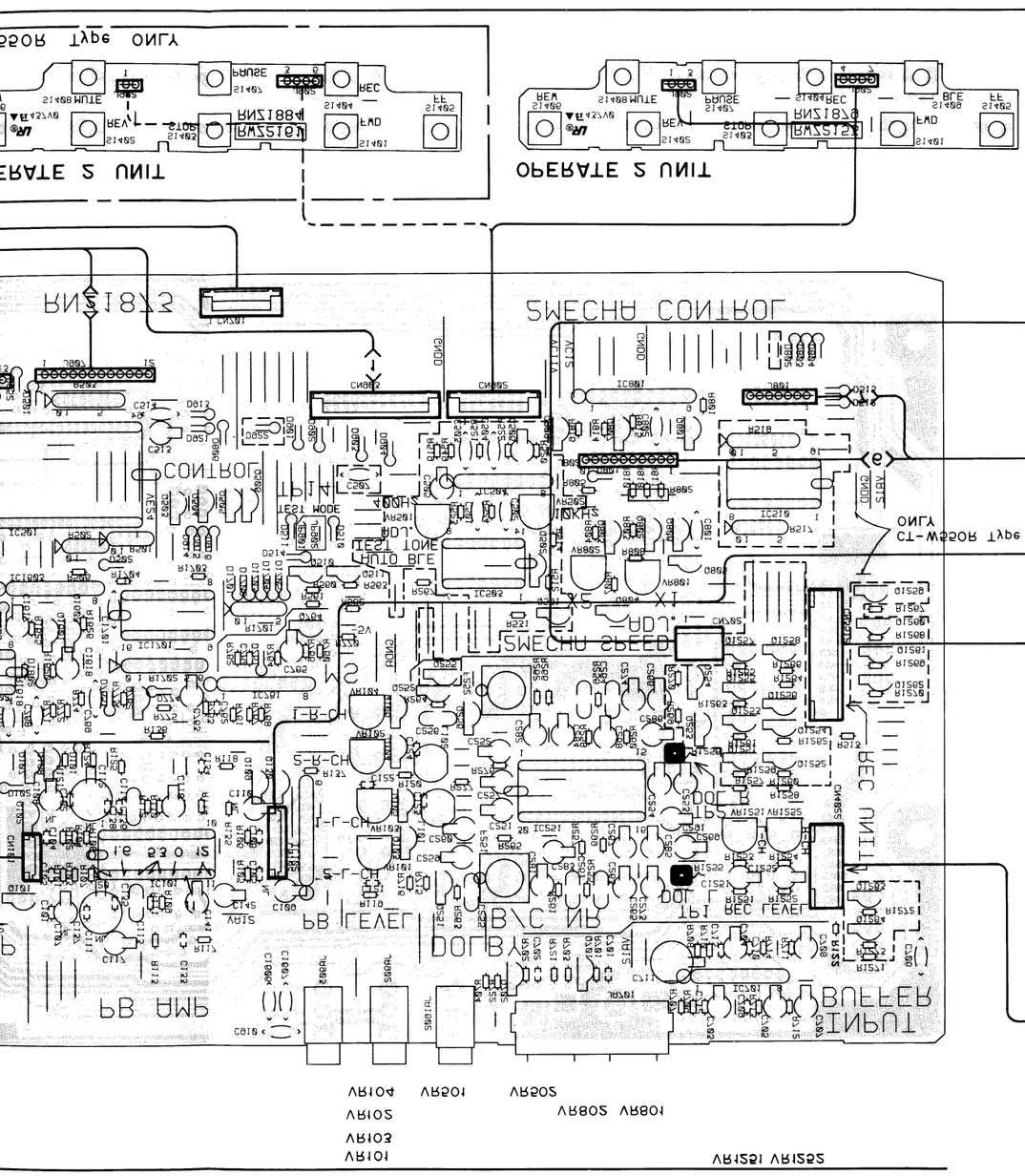
OPERATE 2 UNIT

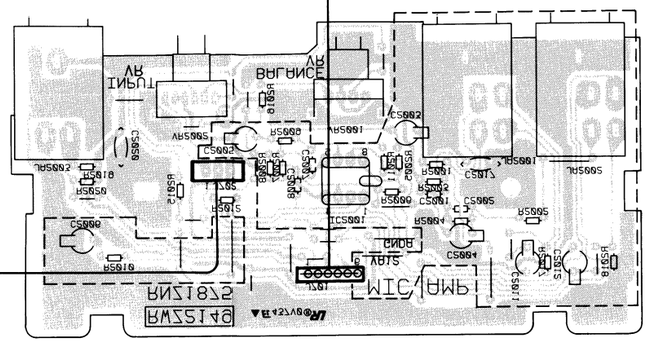
W550R Type ONLY

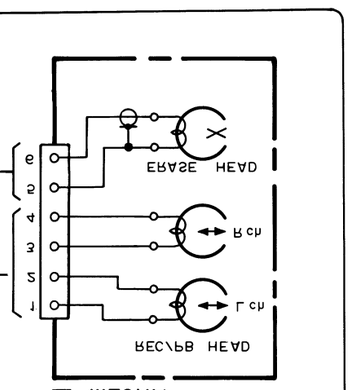
OPERATE 2 UNIT

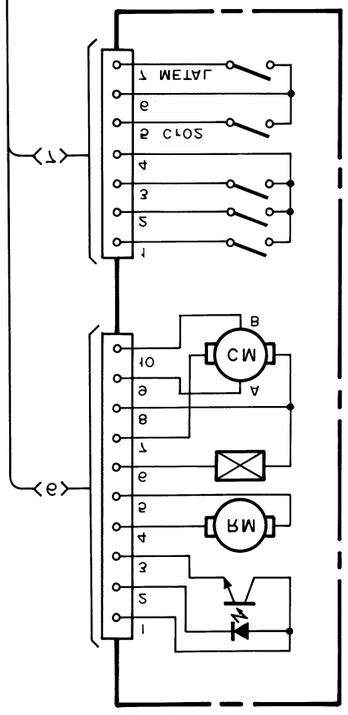
P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor
		FET
		Diode
		Zenner diode
		LED
		Varactor
		Tact switch
		Inductor
		Coil
		Transformer
		Filter
		Ceramic capacitor
		Mylar capacitor
		Styrol capacitor
		Electrolytic capacitor (Non polarized)
		Electrolytic capacitor (Noiseless)
		Electrolytic capacitor (Polarized)
		Electrolytic capacitor (Polarized)
		Power capacitor
		Semi-fixed resistor
		Resistor array
		Resistor
		Resonator
		Thermistor

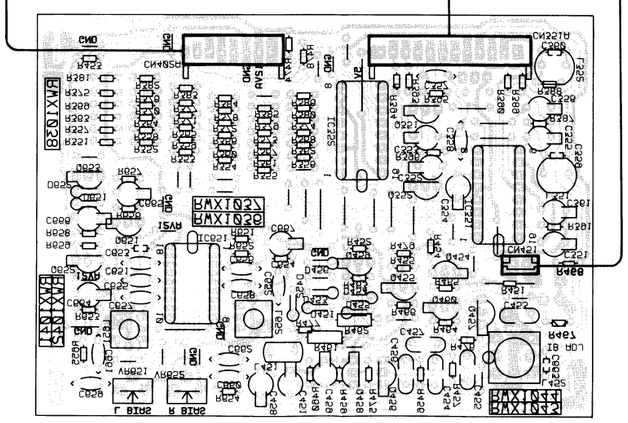
1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.

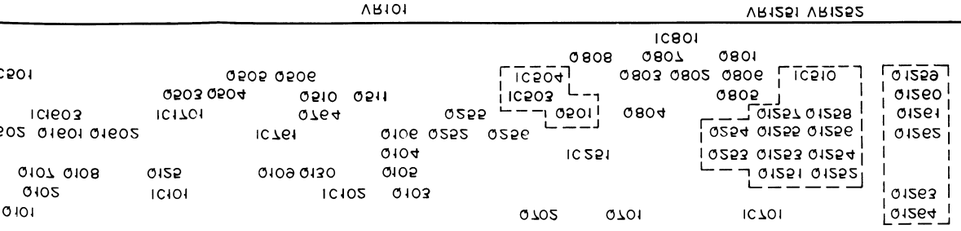






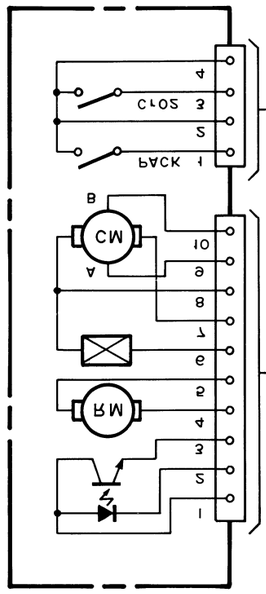


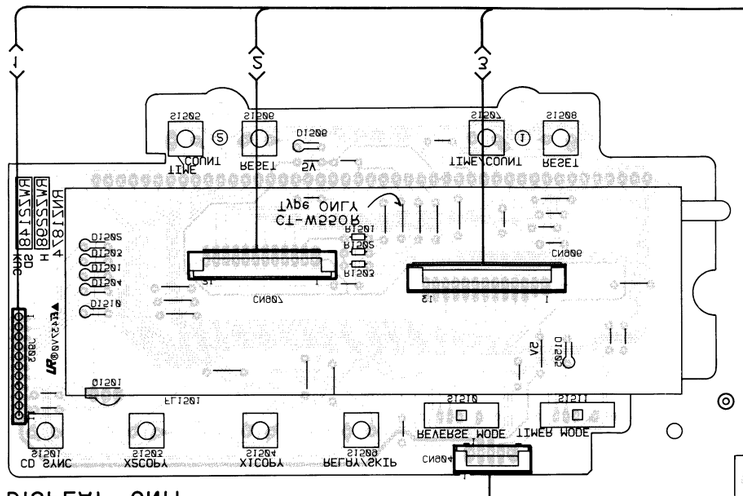


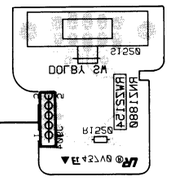


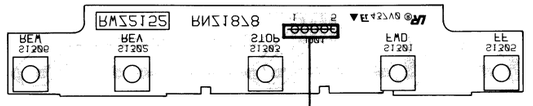
• View from soldering side

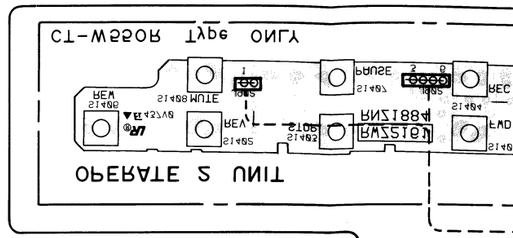
4. P.C. BOARDS CONNECTION DIAGRAM

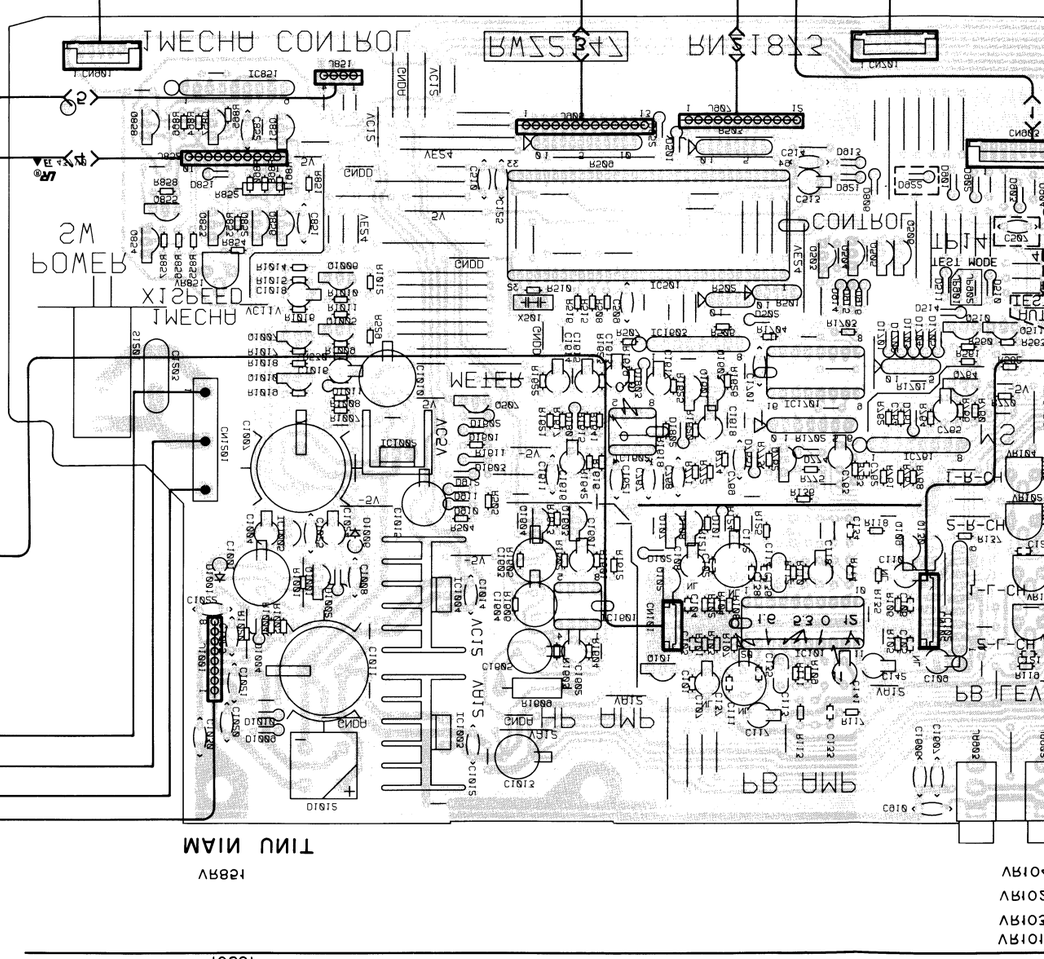


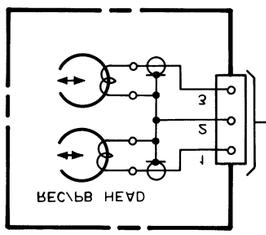


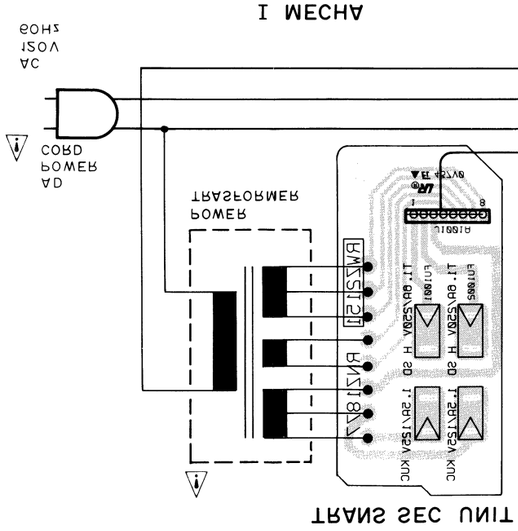








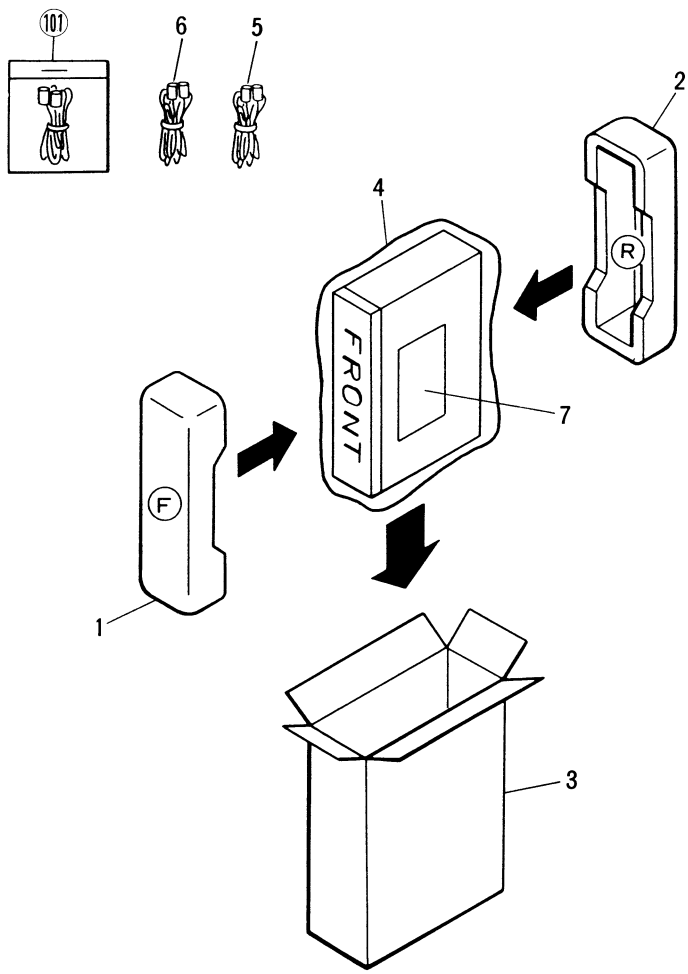




5. PACKING

Parts List

Mark	No.	Description	Part No.
	1	Pad (A)	RHA1023
	2	Pad (B)	RHA1024
	3	Packing case	RHG1293
	4	Sheet	RHX – 034
	5	Connection cord (Mini)	PDE – 319
	6	Control cord	RDE1030
	7	Operating instructions (English)	RRB1091
	101	Connection cord assembly	



6. P.C.B's PARTS LIST

NOTES:

- Parts without part number cannot be supplied.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%)

560 Ω → 56 × 10^1 → 561 ····· RD1/4PS 5 6 1 J
47k Ω → 47 × 10^3 → 473 ····· RD1/4PS 4 7 3 J
0.5 Ω → 0R5 ····· RN2H 0 R 5 K
1 Ω → 010 ····· RS1P 0 1 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562 × 10^1 → 5621 ····· RN1/4SR 5 6 2 1 F

Mark	No.	Description	Part No.
REC UNIT			
SEMICONDUCTORS			
	IC351	REC EQUALIZER IC	CXA1198AP
	IC352	LOGIC IC	MC14051B
	IC651	DOLBY HX PRO IC	UPC1297CA
	Q351, 352	TRANSISTOR	2SC3311A
	Q454, 455	TRANSISTOR	2SC3311A
	Q456-458	TRANSISTOR	2SC1815
	Q459, 460	TRANSISTOR	2SB1238X
	Q651, 652	TRANSISTOR	2SA1309A
	Q653	TRANSISTOR	DTC124ES
	D451	DIODE	1SS254
	D452	DIODE	1SS252
	D453-456	DIODE	1SS254
	D651, 652	DIODE	1SS254
COILS/TRANSFORMERS			
	L351, 352	COIL	RTF1004
	L451	RADIAL INDUCTOR	LFA121K
	L452		RTD1048
	L651, 652	COIL	RTD1046
CAPACITORS			
	C351, 352	ELECTR. CAPACITOR	CEAS221M10
	C353-356	ELECTR. CAPACITOR	CEAS4R7M50
	C357	CERAMIC CAPACITOR	CKCYF473Z50
	C358	CERAMIC CAPACITOR	CKCYF103Z50
	C359, 360	AXIAL CAPACITOR	CKPUYB221K50
	C361	ELECTR. CAPACITOR	CEAS470M16
	C451	ELECTR. CAPACITOR	CEAS330M16
	C453	CAPACITOR	CQPA682J100
	C454	AUDIO FILM CAPACITOR	CFTXA223J50
	C455-457	CERAMIC CAPACITOR	CGCYX332K25
	C458	ELECTR. CAPACITOR	CEAS330M16
	C459	ELECTR. CAPACITOR	CEAS100M50
	C651, 652	CERAMIC CAPACITOR	CGCYX103K25
	C653, 654	AXIAL CAPACITOR	CKPUYB821K50
	C655, 656	CERAMIC CAPACITOR	CGCYX223K25
	C657, 658	CERAMIC CAPACITOR	CGCYX473K25
	C659, 660	CERAMIC CAPACITOR	CCCSL101K500
	C661, 662	CERAMIC CAPACITOR	RCG1005
	C663	AXIAL CAPACITOR	CKPUYB101K50
	C664	ELECTR. CAPACITOR	CEASR10M50
	C665	ELECTR. CAPACITOR	CEAS100M50
	C666	ELECTR. CAPACITOR	CEAS4R7M50
	C667	ELECTR. CAPACITOR	CEAS100M50
RESISTORS			
	R351-391	CARBONFILM RESISTOR	RD1/6PM□□□J
	R393-396	CARBONFILM RESISTOR	RD1/6PM□□□J
	R451	CARBONFILM RESISTOR	RD1/2LF□□□J
	R452-457	CARBONFILM RESISTOR	RD1/6PM□□□J
	R459, 460	CARBONFILM RESISTOR	RD1/6PM□□□J
	R461, 462	CARBONFILM RESISTOR	RD1/2LF□□□J
	R463-468	CARBONFILM RESISTOR	RD1/6PM□□□J
	R474-479	CARBONFILM RESISTOR	RD1/6PM□□□J
	R651-659	CARBONFILM RESISTOR	RD1/6PM□□□J
	VR651, 652	VR	VRTB6HS223
OTHERS			
	CN351		S11B-XH-A-1
	CN402		S7B-XH-A-1
MAIN UNIT			
SEMICONDUCTORS			
	IC101	PB-EQ AMP IC	CXA1115BP
	IC102	IC	BA3126N
	IC251	DOLBY B/C IC	CXA1330S
	IC501	MCU	PD4314A
	IC503	LOGIC IC	TC4066BP
	IC504	IC	BA15218N
	IC510	LOGIC IC	BU2040
	IC701	IC	BA15218N
	IC761	IC	BA15218N
	IC801	IC	BA6218
	IC851	IC	BA6218
⚠	IC1002	REGULATOR IC	NJM78M05FA
⚠	IC1003, 1004	REGULATOR IC	NJM7812FA
⚠	IC1005	REGULATOR IC	NJM79L05A

Mark	No.	Description	Part No.
	IC1601, 1602	OP-AMP IC	BA15218
	IC1603	DUAL-COMPARATOR IC	M5233L
	IC1701	CMOS LOGIC IC	TC4050BP
	Q101-109	TRANSISTOR	DTC124ES
	Q130	TRANSISTOR	DTC124ES
	Q251, 252	TRANSISTOR	DTC124ES
	Q253, 254	TRANSISTOR	2SD2144S
	Q255	DIGITAL TRANSISTOR	DTC114TS
	Q256	TRANSISTOR	DTC124ES
	Q501	TRANSISTOR	DTA124ES
	Q502-507	TRANSISTOR	DTC124ES
	Q510, 511	TRANSISTOR	2SA1309A
	Q701, 702	TRANSISTOR	2SD2144S
	Q762	DIGITAL TRANSISTOR	DTA114TS
	Q764	TRANSISTOR	DTC124ES
	Q801-803	TRANSISTOR	2SD1858X
	Q804	DIGITAL TRANSISTOR	DTA115TS
	Q805	DIGITAL TRANSISTOR	DTC114TS
	Q806	TRANSISTOR	2SC3311A
⚠	Q807	TRANSISTOR	2SC3246
	Q808	DIGITAL TRANSISTOR	DTC114TS
	Q851-853	TRANSISTOR	2SD1858X
	Q854	DIGITAL TRANSISTOR	DTA115TS
	Q855	DIGITAL TRANSISTOR	DTC114TS
	Q856	TRANSISTOR	2SC3311A
⚠	Q857	TRANSISTOR	2SC3246
	Q858	DIGITAL TRANSISTOR	DTC114TS
	Q1001	TRANSISTOR	2SA1283
	Q1005	TRANSISTOR	2SA1309A
	Q1006, 1007	TRANSISTOR	2SC3311A
	Q1010	TRANSISTOR	2SA1309A
	Q1251-1264	DIGITAL TRANSISTOR	DTC114TS
	Q1601, 1602	DIGITAL TRANSISTOR	DTC114TS
	Q1603, 1604	TRANSISTOR	2SD2144S
	D101, 102	DIODE	1SS254
	D501	ZENER DIODE	MTZJ9.1A
	D502	DIODE	1SS254
	D510-514	DIODE	1SS254
	D761	DIODE	1SS254
	D765	ZENER DIODE	MTZJ3.9B
	D774	DIODE	1SS254
	D801	DIODE	1SS252
	D802-804	DIODE	1SS254
	D806	DIODE	1SS254
	D851	DIODE	1SS252
	D852	DIODE	1SS254
	D901-904	DIODE	1SS254
	D910-916	DIODE	1SS254
	D921, 922	DIODE	1SS254
⚠	D1001	DIODE	1SR35-100AVL
⚠	D1002	ZENER DIODE	MTZJ24A/B
	D1004	ZENER DIODE	MTZJ5.6B
⚠	D1006	DIODE	1SR35-100AVL
	D1009-1011	DIODE	1SS254
⚠	D1012		S2VB20
	D1601-1603	DIODE	1SS254
	D1701-1705	DIODE	1SS254
	D1801-1803	DIODE	1SS254
SWITCHES			
⚠	S1201	SWITCH	RSA-063
COILS/TRANSFORMERS			
	L101, 102	COIL	RTF1099
	F251, 252	FILTER	RTF1062
CAPACITORS			
	C101, 102	AXIAL CAPACITOR	CKPUYB471K50
	C103, 104	AXIAL CAPACITOR	CKPUYB561K50
	C105, 106	CERAMIC CAPACITOR	CKPUYB102K50
	C107-110	ELECTR. CAPACITOR	CEANL100M16
	C111, 112	ELECTR. CAPACITOR	CEANL101M10
	C113, 114	AUDIO FILM CAPACITOR	CFTXA822J50
	C117, 118	ELECTR. CAPACITOR	CEAS4R7M50
	C121, 122	AXIAL CAPACITOR	CKPUYB221K50
	C123, 124	AXIAL CAPACITOR	CKPUYB391K50
	C125	CERAMIC CAPACITOR	CKCYF103Z50
	C133, 134	AXIAL CAPACITOR	CKPUYB681K50
	C135-138	AXIAL CAPACITOR	CKPUYB101K50
	C141, 142	ELECTR. CAPACITOR	CEAS470M16
	C251-254	ELECTR. CAPACITOR	CEAS010M50
	C255, 256	AUDIO FILM CAPACITOR	CFTXA472J50
	C257	ELECTR. CAPACITOR	CEAS100M50
	C259, 260	ELECTR. CAPACITOR	CEAS4R7M50
	C261-264	AUDIO FILM CAPACITOR	CFTXA222J50
	C265, 266	ELECTR. CAPACITOR	CEASR22M50
	C267, 268	ELECTR. CAPACITOR	CEASR33M50
	C269	ELECTR. CAPACITOR	CEAS100M50
	C273, 274	ELECTR. CAPACITOR	CEASR33M50
	C281-284	ELECTR. CAPACITOR	CEAS100M50
	C285, 286	ELECTR. CAPACITOR	CEAS330M16
	C291	ELECTR. CAPACITOR	CEAS101M16
	C501	CERAMIC CAPACITOR	CGCYX223K25
	C502	CERAMIC CAPACITOR	CGCYX222K25
	C503	CERAMIC CAPACITOR	CGCYX104K25
	C504	CERAMIC CAPACITOR	CGCYX103K25
	C505, 506	ELECTR. CAPACITOR	CEAS010M50
	C507	CERAMIC CAPACITOR	CKCYF473Z50
	C509, 510	CERAMIC CAPACITOR	CKCYF103Z50
	C513	ELECTR. CAPACITOR	CEAS470M16
	C514	CERAMIC CAPACITOR	CKCYF103Z50
	C701, 702	AXIAL CAPACITOR	CKPUYB101K50
	C703, 704	ELECTR. CAPACITOR	CEAS010M50
	C705	ELECTR. CAPACITOR	CEAS470M16
	C706	CERAMIC CAPACITOR	CKCYF473Z50
	C707, 708	ELECTR. CAPACITOR	CEAS100M50
	C709, 710	AXIAL CAPACITOR	CKPUYB101K50
	C711	ELECTR. CAPACITOR	CEAS470M16
	C712, 713	AXIAL CAPACITOR	CKPUYB101K50
	C762	AXIAL CAPACITOR	CKPUYB101K50

Mark	No.	Description	Part No.
	C763	ELECTR. CAPACITOR	CEASR47M50
	C764	AXIAL CAPACITOR	CKPUYB271K50
	C765	ELECTR. CAPACITOR	CEASR22M50
	C767, 768	CERAMIC CAPACITOR	CGCYX822K25
	C769	CERAMIC CAPACITOR	CKCYF473Z50
	C801	CERAMIC CAPACITOR	CKCYF103Z50
	C802	CERAMIC CAPACITOR	CKCYF473Z50
	C851	CERAMIC CAPACITOR	CKCYF103Z50
	C852	CERAMIC CAPACITOR	CKCYF473Z50
	C910	CERAMIC CAPACITOR	CKCYF103Z50
	C1001	ELECTR. CAPACITOR	CEAS221M50
	C1004	ELECTR. CAPACITOR	CEAS330M35
	C1007	ELECTR. CAPACITOR	CEAS472M16
	C1008	CERAMIC CAPACITOR	CKCYF473Z50
	C1010	ELECTR. CAPACITOR	CEAS102M10
	C1011	ELECTR. CAPACITOR	CEAS472M25
	C1012	CERAMIC CAPACITOR	CFTXA103J50
	C1013	ELECTR. CAPACITOR	CEAS331M16
	C1014	AUDIO FILM CAPACITOR	CFTXA473J50
	C1015	ELECTR. CAPACITOR	CEAS331M16
	C1016	ELECTR. CAPACITOR	CEAS100M50
	C1018	ELECTR. CAPACITOR	CEAS4R7M50
	C1020-1023	CERAMIC CAPACITOR	CKCYF473Z50
	C1024	ELECTR. CAPACITOR	CEHAQ470M10
	C1025	CERAMIC CAPACITOR	CKCYF473Z50
	C1030	CERAMIC CAPACITOR	CKCYF473Z50
⚠	C1203	CAPACITOR (CERAMIC)	RCG-009
	C1251, 1252	ELECTR. CAPACITOR	CEASR47M50
	C1601, 1602	ELECTR. CAPACITOR	CEASR22M50
	C1603, 1604	ELECTR. CAPACITOR	CEAS101M16
	C1605	ELECTR. CAPACITOR	CEAS331M16
	C1606	CERAMIC CAPACITOR	CKCYF103Z50
	C1607	CERAMIC CAPACITOR	CKCYF473Z50
	C1611	CERAMIC CAPACITOR	CKCYF473Z50
	C1613	ELECTR. CAPACITOR	CEAS331M10
	C1614	ELECTR. CAPACITOR	CEAS330M35
	C1615, 1616	ELECTR. CAPACITOR	CEAS100M50
	C1617, 1618	ELECTR. CAPACITOR	CEASR47M50
	C1621	CERAMIC CAPACITOR	CKCYF473Z50
	C1701	CERAMIC CAPACITOR	CKCYF473Z50

RESISTORS

	R101-114	CARBONFILM RESISTOR	RD1/6PM□□□J
	R117-121	CARBONFILM RESISTOR	RD1/6PM□□□J
	R122, 124, 125	CARBONFILM RESISTOR	RD1/6PM□□□J
	R135-137	CARBONFILM RESISTOR	RD1/6PM□□□J
	R255-258	CARBONFILM RESISTOR	RD1/6PM□□□J
	R260-267	CARBONFILM RESISTOR	RD1/6PM□□□J
	R269, 270	CARBONFILM RESISTOR	RD1/6PM□□□J
	R276, 277	CARBONFILM RESISTOR	RD1/6PM□□□J
	R299	CARBONFILM RESISTOR	RD1/6PM□□□J
	R501, 502	RESISTOR ARRAY (10K)	RA4T□□□J
	R503	RESISTOR ARRAY(68K)	RA7T□□□J
	R504-508	CARBONFILM RESISTOR	RD1/6PM□□□J
	R509	RESISTOR ARRAY (68K)	RA11T□□□J
	R510	CARBONFILM RESISTOR	RD1/6PM□□□J
	R512-516	CARBONFILM RESISTOR	RD1/6PM□□□J
	R517	RESISTOR ARRAY (22K)	RA5T□□□J
	R518	RESISTOR ARRAY (22K)	RA7T□□□J
	R519-524	CARBONFILM RESISTOR	RD1/6PM□□□J
	R529-531	CARBONFILM RESISTOR	RD1/6PM□□□J
	R549	CARBONFILM RESISTOR	RD1/6PM□□□J
	R560-563	CARBONFILM RESISTOR	RD1/6PM□□□J
	R701-704	CARBONFILM RESISTOR	RD1/6PM□□□J
	R707-716	CARBONFILM RESISTOR	RD1/6PM□□□J
	R721, 722	CARBONFILM RESISTOR	RD1/6PM□□□J
	R760-764	CARBONFILM RESISTOR	RD1/6PM□□□J
	R766-768	CARBONFILM RESISTOR	RD1/6PM□□□J
	R770-775	CARBONFILM RESISTOR	RD1/6PM□□□J
	R801	CARBONFILM RESISTOR	RD1/6PM□□□J
	R802	METAL OXIDE RESISTOR	RS1LMF□□□J
	R803-805	CARBONFILM RESISTOR	RD1/6PM□□□J
	R807, 808	CARBONFILM RESISTOR	RD1/6PM□□□J
	R810, 811	CARBONFILM RESISTOR	RD1/6PM□□□J
	R814-816	CARBONFILM RESISTOR	RD1/6PM□□□J
	R818	CARBONFILM RESISTOR	RD1/6PM□□□J
	R851	CARBONFILM RESISTOR	RD1/6PM□□□J
	R852	METAL OXIDE RESISTOR	RS1LMF□□□J
	R853-858	CARBONFILM RESISTOR	RD1/6PM□□□J
	R860, 861	CARBONFILM RESISTOR	RD1/6PM□□□J
	R864-866	CARBONFILM RESISTOR	RD1/6PM□□□J
	R868	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1001	CARBONFILM RESISTOR	RD1/2LF□□□J
	R1003, 1004	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1007-1012	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1014-1019	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1020	FUSLIBLE RESISTOR	RFA1/4L□□□J
	R1251-1254	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1257-1273	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1601-1606	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1609	METAL OXIDE RESISTOR	RS2LMF□□□J
	R1611-1613	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1615-1623	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1625, 1626	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1641, 1642	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1701	RESISTOR ARRAY (22K)	RA5T□□□J
	R1702	LADDER RESISTOR	RCX1020
	R1703, 1704	CARBONFILM RESISTOR	RD1/6PM□□□J
	VR101-104	VR	RCP1046
	VR501, 502	VR	RCP1046
	VR801	VR	VRTG6VS223
	VR802	VR	RCP1054
	VR851	VR	VRTG6VS223
	VR1251, 1252	VR	RCP1046

OTHERS

CN3512		11JQ-BT
CN4022		7JQ-BT
JA701	JACK	RKB-020
JA902, 903	JACK	RKN1004

Mark	No.	Description	Part No.
	JA1602	JACK	RKN1014
	X501	CERAMIC RESONATOR	VSS1014

DISPLAY UNIT

SEMICONDUCTORS

	Q1501	DIGITAL TRANSISTOR	DTA114TS
	D1501-1506	DIODE	1SS254
	D1510	DIODE	1SS254

SWITCHES

	S1501	SWITCH	RSG1034
	S1503-1509	SWITCH	RSG1034
	S1510, 1511	SWITCH	RSH1014

RESISTORS

	R1501-1503	CARBONFILM RESISTOR	RD1/6PM□□□J

OTHERS

	CN907		BTMK12S-1S
	V1501	FL tube	RAW1082

VOLUME UNIT

SEMICONDUCTORS

	IC2001	OP-AMP IC	BA15218

CAPACITORS

	C2001, 2002	AXIAL CAPACITOR	CKPUYB681K50
	C2003, 2004	ELECTR. CAPACITOR	CEAS010M50
	C2005, 2006	ELECTR. CAPACITOR	CEAS100M50
	C2007, 2008	AXIAL CAPACITOR	CKPUYB101K50
	C2011, 2012	ELECTR. CAPACITOR	CEAS010M50
	C2017	CERAMIC CAPACITOR	CKCYF473Z50
	C2020	CERAMIC CAPACITOR	CKCYF473Z50

RESISTORS

	R2001-2012	CARBONFILM RESISTOR	RD1/6PM□□□J
	R2015-2020	CARBONFILM RESISTOR	RD1/6PM□□□J
	VR2001	VARIABLE RESISTOR	RCS1017
	VR2002	VARIABLE RESISTOR	RCV1061

OTHERS

	JA2001, 2002	JACK	RKN1003
	JA2003	JACK	RKN1002

TRANS SEC UNIT

There is no supply part in this unit.

OPERATE 1 UNIT

SWITCHES

	S1301-1303	SWITCH	RSG1033
	S1305, 1306	SWITCH	RSG1033

OPERATE 2 UNIT

SWITCHES

	S1401-1409	SWITCH	RSG1033

DOLBY SW UNIT

RESISTORS

	R1520	CARBONFILM RESISTOR	RD1/6PM□□□J

SWITCHES

	S1520	SWITCH	RSH1024

7. ADJUSTMENTS

7.1 MECHANICAL ADJUSTMENT

- This adjustment should be performed in the test mode.
- Entering the test mode.

Short JP901 and JP902 (TP14) briefly. (The unit enters the TEST MODE.)

Mode	Operation	Display
Side I Double speed play	Double speed PLAY is selected by pressing the FAST key (side I or II) during PLAY mode of side I.	Side II counter : 4 HI-SPEED lights up.
Side II Double speed play	Double speed PLAY is selected by pressing the FAST key (side I or II) during PLAY mode of side II.	Side II counter : 5 HI-SPEED lights up.

To release the TEST MODE, press the side I COUNTER RESET key or turn off the unit.

1. Tape speed adjustment and check

No.	Deck	Mode	Test tape	Adjusting points	Specifications/Ratings (playback frequency)	Remarks
1	I	Normal speed PLAY	STD-301 (3 kHz)	After playing back for 1 minute.		
2		Double speed PLAY		check	6000 Hz ± 600 Hz	
3		Normal speed PLAY		VR851	3000 Hz ± 5 Hz	
4	II			After checking, play back on deck II.		
5		Double speed PLAY		After playing back for 1 minute.		
6		Normal speed PLAY		VR802	Within ± 10 Hz of the value measured in step 2 (deck I)	
7				VR801	3000 Hz ± 5 Hz	

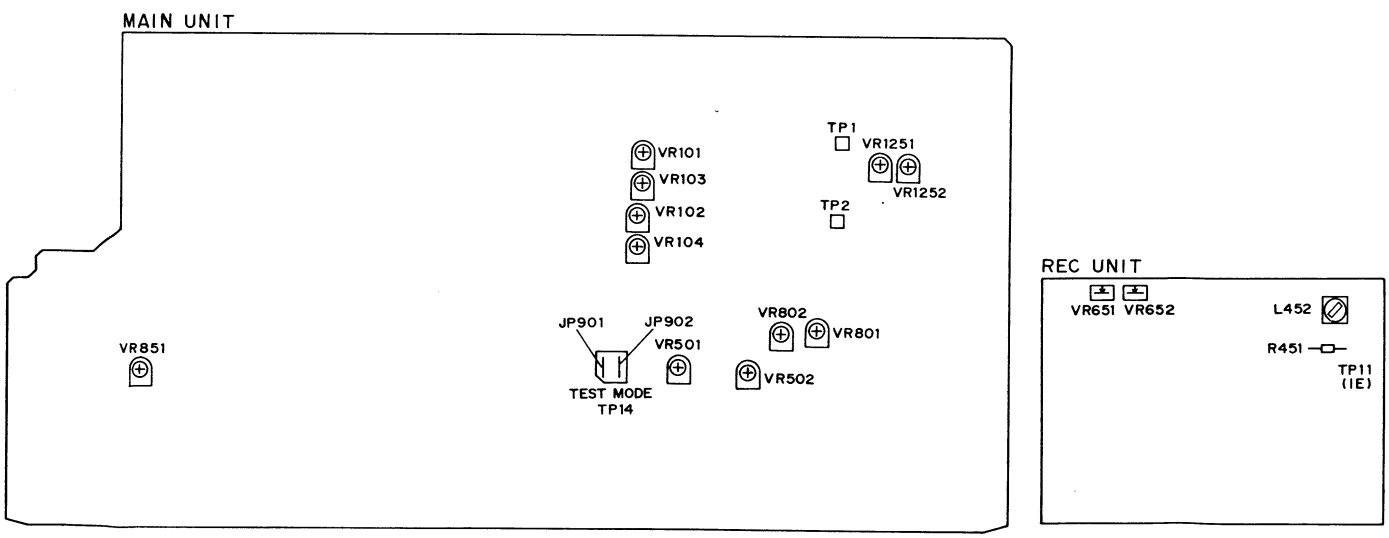


Fig. 7–1 Adjusting points

7.2 ELECTRICAL ADJUSTMENTS

Adjustment Conditions

1. The mechanical adjustments must be completed first.
2. The head must be cleaned and demagnetized.
3. Turn power on allow the deck to warm up for at least a few minutes before commencing any electrical adjustments.
4. The reference signal is 0 dBv=1 Vrms.
5. Connect a 50 kΩ (or between 47k to 52 kΩ) load resistance to the OUTPUT terminals.
6. Unless otherwise specified, the switches listed below are left in the positions indicated.
   DOLBY NR : OFF
   TAPE SELECTOR : NORM

Test Tapes

STD–331B : Playback adjustments (See Fig. 7–2)
STD–630 : NORMAL blank tape
STD–620 : CrO_2 blank tape
STD–610 : METAL blank tape

List of Adjustments

Playback sections

1. Head azimuth adjustment.
2. Playback level adjustment.

Recording sections

1. Bias oscillator adjustment.
2. Recording bias adjustment.
3. Recording level adjustment.
4. Level meter check.
5. AUTO BLE adjustment.

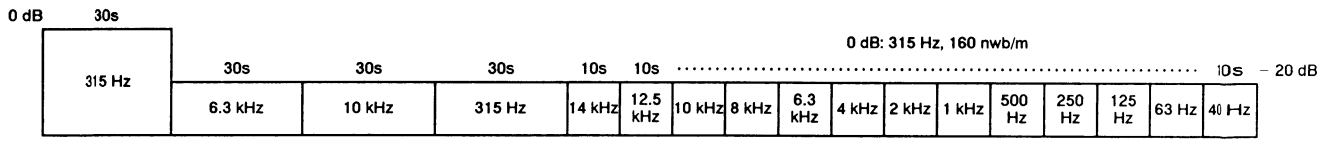


Fig. 7–2 Constants of the test tape STD–331B

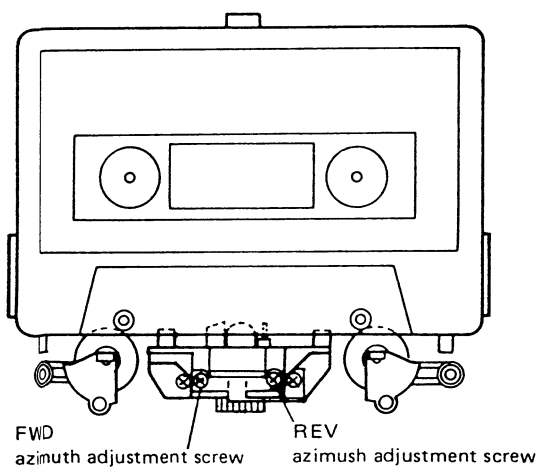


Fig. 7–3 Head azimuth adjustment

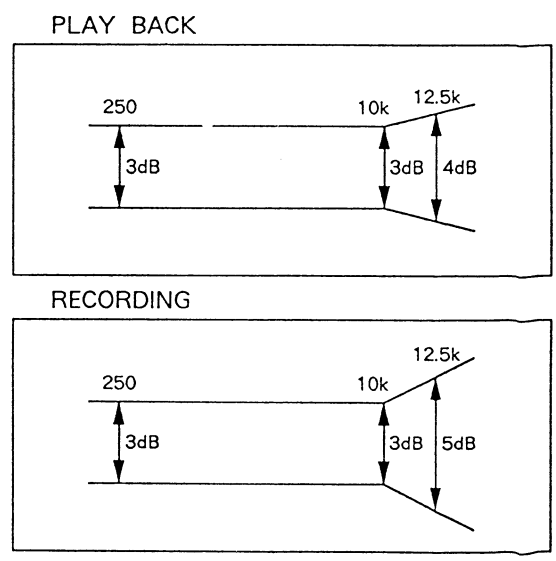


Fig. 7–4 Allowable playback frequency response zone

PLAYBACK SECTION

1. Head Azimuth Adjustment

- Turn VR103, 104 (Deck I) or VR101, 102 (Deck II) to mechanical center positions.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 10 kHz/–20 dB section of STD–331B test tape.	Head azimuth adjustment screw. (See Fig. 7–3)	LINE OUT	Maximum playback signal level.	
2.	STOP	Lock the screw with screw lock after completing adjustment.				

2. Playback Level Adjustment

- This adjustment determines the DOLBY NR level, and must be performed with great care.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 315 Hz/0 dB section of the STD–331B test tape.	Deck I	VR103 (Lch) VR104 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	–10.7 dBv	
			Deck II	VR101 (Lch) VR102 (Rch)			

RECORDING SECTION

1. Bias Oscillator Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC	Load the STD–610 test tape with no input signal.	Deck II	L452	TP. 11	$105^{+3}_{-0.3}$ kHz	

2. Recording Bias Adjustment

- After the adjustment, caution should be exercised so as not to become under bias by checking the distortion rate.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	STOP	Load the test tape STD–630 (NORMAL).					
2.	REC	Record the 315 Hz and 6.3 kHz signals at –20 dBv input level and playback.	Deck II	VR651 (Lch) VR652 (Rch)	LINE OUT	Repeatedly record, playback and adjust so that the playback level of 6.3 kHz signal becomes +0.5 dB ± 0.5 dB when compared with the 315 Hz signal.	

3. Recording Level Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC/ PAUSE	Apply a 315 Hz/0 dBv signal to the line input terminals, load the STD–630 test tape.	REC level control volume		TP. 1 (Lch) TP. 2 (Rch)	–11.2 dBv	
2.	STOP	Set the DOLBY NR switch to the ON position. (DOLBY B)					
3.	REC/ PLAY	Record the above signal onto the STD–630 test tape, and playback.	Deck	VR1251 (Lch) VR1252 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	Repeatedly record, playback and adjust so that the playback signal level becomes –11.2 dB.	
4.	STOP	Set the TAPE SELECTOR switch to the CrO2 position.					
5.	REC/ PLAY	Record the above signal onto the STD–620 test tape, and playback.	Check		TP. 1 (Lch) TP. 2 (Rch)	–11.2 dBv ± 1.5 dB	
6.	STOP	Set the TAPE SELECTOR switch to the METAL position.REC level control volume.					
7.	REC/ PLAY	Record the above signal onto the STD–610 test tape, and playback.	Check		TP. 1 (Lch) TP. 2 (Rch)	–11.2 dBv ± 1.5 dB	

4. Level Meter Check

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	REC/ PAUSE	Apply a 315 Hz/–10 dBv (316 mV) signal to the Line Input terminals.	REC level control volume	TP. 1 (Lch) TP. 2 (Rch)	Check that the level meters "0 dB" light up within –11.2 dBv ± 2 dB of the signal output level.	

5. AUTO BLE Adjustment

- BLE adjustment must be performed after all other adjustments are completed.
- This adjustment should be performed in the test mode.
- Entering the test mode.
- Turn on POWER switch and short JP901 and JP902.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	–	Set to the test mode.	–	–	–	
2.		Press the NORMAL SPEED key on the front panel.	Level meter	VR501	Adjust so that 0 dB blinks on the level meter. *1	400 Hz adjustment
3.		Press the HIGH SPEED key.		VR502	Adjust so that 0 dB blinks on the level meter. *1	10 kHz adjustment

*1 After adjustment of 2 and 3 the LINE OUT output becomes –16 dBv ± 1 dB.

- Releasing the test mode.
  Press the RESET (COUNTER) key on the DECK I side

7. RÉGLAGES

7.1 RÉGLAGE MECANIQUE

- Ce réglage doit être effectué dans le mode d'essai.
- Passage au mode d'essai.

Court–circuiter brièvement JP901 et JP902 (TP14). (L'appareil passe dans le MODE D'ESSAI).

Mode	Opération	Indication
Lecture (PLAY) double vitesse pour le côté I	La lecture double vitesse est sélectionnée en appuyant sur la touche FAST (côté I ou II) pendant le mode lecture (PLAY) du côté I.	Compteur côté II : 4 HI–SPEED s'allume.
Lecture (PLAY) double vitesse pour le côté II	La lecture double vitesse est sélectionnée en appuyant sur la touche FAST (côté I ou II) pendant le mode lecture (PLAY) du côté II.	Compteur côté II : 5 HI–SPEED s'allume.

Pour sortir du MODE D'ESSAI, appuyer sur la touche COUNTER RESET du côté I ou mettre l'appareil hors circuit.

1. Réglage et vérification de la vitesse de defilement de la bande

No.	Platine	Mode	Bande test	Points de réglage	Spécifications/valeurs (fréquence de lecture)	Remarques
1	I	Lecture à vitesse normale	STD-301 (3 kHz)	Après reproduction pendant 1 minute.		
2		Lecture à vitesse double		Vérifier	6000 Hz ± 600 Hz	
3		Lecture à vitesse normale		VR851	3000 Hz ± 5 Hz	
4	II			Après le contrôle, reproduire sur la Platine II.		
5		Lecture à vitesse double		Après reproduction pendant 1 minute.		
6		Lecture à vitesse normale		VR802	Dans la limite de ± 10 Hz de la valeur mesurée à l'étape 2 (Platine I).	
7				VR801	3000 Hz ± 5 Hz	

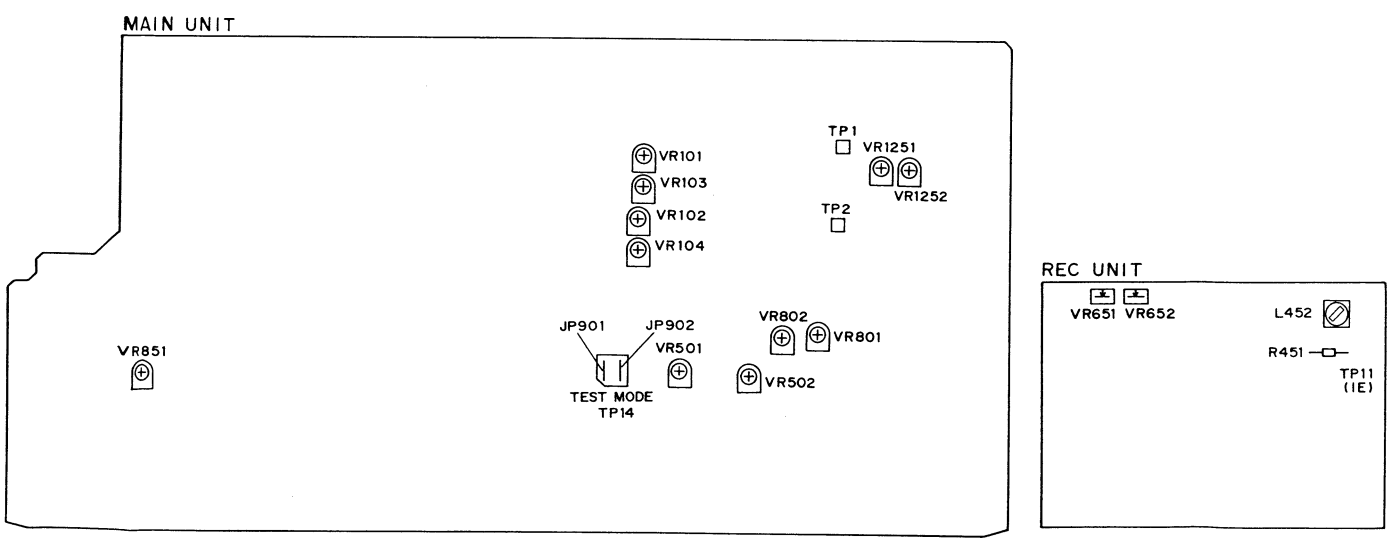


Fig. 7–1 Points de réglage

7.2 REGLAGES ELECTRIQUES

Conditions de réglage

1. Les réglages mécaniques doivent tout d'abord être terminés.
2. Les têtes doivent être nettoyées et démagnétisées.
3. Mettre la platine sous tension et la laisser chauffer pendant au moins quelques minutes avant de commencer les réglages électriques.
4. Le signal de référence est de 0 dBv=1 Vrms.
5. Connecter une résistance de charge de 50 kΩ (tolérance 47k à 52 kΩ) aux bornes de sortie (OUTPUT).
6. Sauf indication contraire, les commutateurs ci–dessous doivent être laissés sur les positions indiquées.
   DOLBY NR : OFF
   Sélecteur de bande (TAPE SELECTOR) : NORM

Bandes d'essai

STD–331B : Réglages de la lecture (Voir fig. 7–2)
STD–630 : Bande vierge de type normal
STD–620 : Bande vierge de type chrome
STD–610 : Bande vierge de type métal

Liste des réglages

Sections de lecture

1. Réglage de l'azimut de la tête.
2. Réglage du niveau de lecture.

Sections d'enregistrement

1. Réglage de l'oscillateur de polarisation.
2. Réglage de la polarisation d'enregistrement.
3. Réglage du niveau d'enregistrement.
4. Vérification de l'indicateur de niveau.
5. Réglage de AUTO BLE

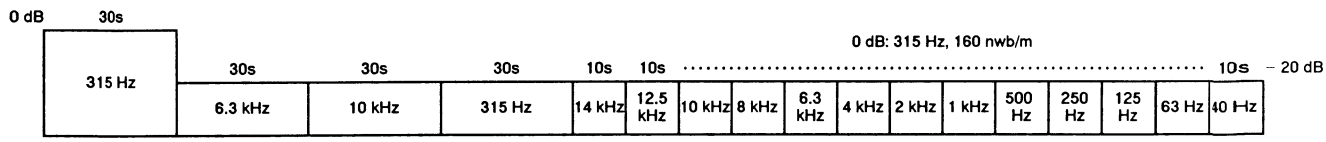


Fig. 7–2 Constantes de la bande d'essai STD–331B

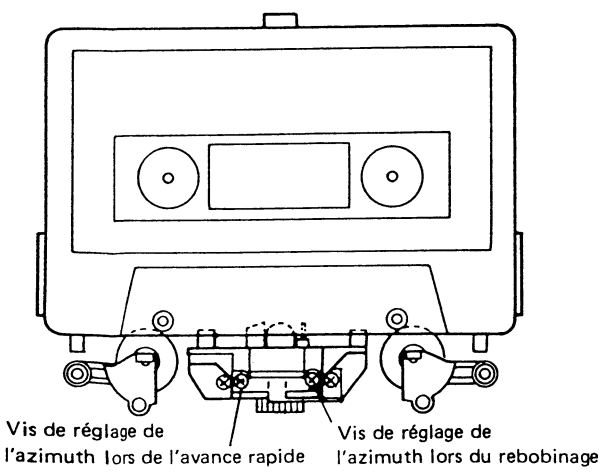


Fig. 7–3 Réglage de l'azimut de la tête

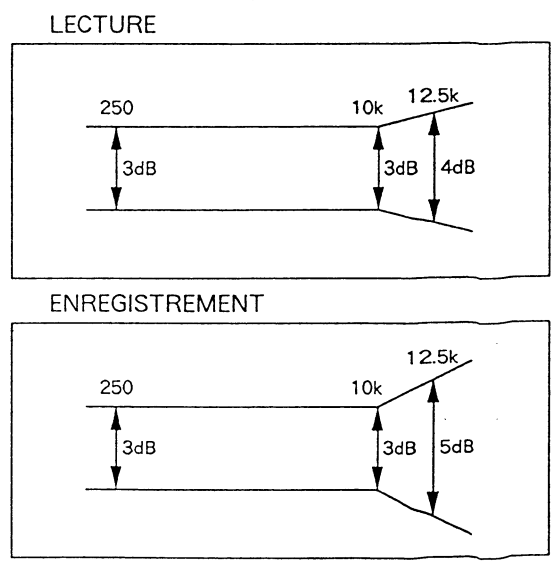


Fig. 7–4 Tolérance de la zone de réponse en fréquence de lecture

SECTION DE LECTURE

1. Réglage de l'azimut de la tête

- Tourner VR103, 104 (Platine I) ou VR101,102 (Platine II) sur leur position centrale mécanique.

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	PLAY	Reproduire la section 10 kHz/–20 dB de la bande d'essai STD–331B.	Vis de réglage de l'azimut de la tête. (Voir fig. 7–3)	Sortie de ligne (LINE OUT)	Niveau du signal de reproduction maximum.	
2.	STOP	Verrouiller la vis avec le verrouillage de vis après avoir terminé le réglage.				

2. Réglage du niveau de lecture

- Ce réglage détermine le niveau DOLBY NR et il doit être effectué très soigneusement.

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage		Points de mesure	Valeur de réglage	Remarques
1.	PLAY	Reproduire la section 315 Hz/0 dB de la bande d'essai STD–331B.	Platine I	VR103 (can. G) VR104 (can. D)	TP. 1 (can. G) TP. 2 (can. D)	–10,7 dBv	
			Platine II	VR101 (can. G) VR102 (can. D)			

SECTION D'ENREGISTREMENT

1. Réglage de l'oscillateur de polarisation

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage		Points de mesure	Valeur de réglage	Remarques
1.	REC	Charger la bande d'essai STD–610 et n'introduire aucun signal.	Platine II	L452	TP. 11	$105\ ^{+3}_{-0,3}$ kHz	

2. Réglage de la polarisation d'enregistrement

- Après le réglage, des précautions doivent être prises pour éviter une sous–polarisation en vérifiant le taux de distorsion.

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage		Points de mesure	Valeur de réglage	Remarques
1.	STOP	Charger la bande d'essai STD–630 (NORMAL).					
2.	REC	Enregistrer les signaux 315 Hz et 6,3 kHz à un niveau d'entrée de –20 dBv et les reproduire.	Platine II	VR651 (can. G) VR652 (can. D)	Sortie de ligne (LINE OUT)	Enregistrer, reproduire et régler de manière répétée de sorte que le niveau de lecture du signal 6,3 kHz devienne +0,5 dB ± 0,5 dB lorsqu'il est comparé avec le signal 315 Hz.	

3. Réglage du niveau d'enregistrement

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage		Points de mesure	Valeur de réglage	Remarques
1.	REC/ PAUSE	Appliquer un signal de 315 Hz/0 dBv aux bornes d'entrée de ligne, charger la bande d'essai STD-630.	Volume de la commande de niveau d'enregistrement.		TP. 1 (can. G) TP. 2 (can. D)	-11,2 dBv	
2.	STOP	Régler le commutateur DOLBY NR sur la position ON. (DOLBY B)					
3.	REC/ PLAY	Enregistrer le signal cidessus sur la bande d'essai STD-630 et le reproduire.	Platine II	VR1251 (can. G) VR1252 (can. D)	TP. 1 (can. G) TP. 2 (can. D)	Enregistrer, reproduire et régler de manière répétée de sorte que le niveau du signal devienne -11,2 dB.	
4.	STOP	Régler le sélecteur de bande (TAPE SELECTOR) sur la position CrO2.					
5.	REC/ PLAY	Enregistrer le signal cidessus sur la bande d'essai STD-620 et le reproduire.	VR1251 (can. G) VR1252 (can. D)		TP. 1 (can. G) TP. 2 (can. D)	-11,2 dBv ± 1,5 dB	
6.	STOP	Régler le sélecteur de bande (TAPE SELECTOR) sur la position METAL.					
7.	REC/ PLAY	Enregistrer le signal cidessus sur la bande d'essai STD-610 et le reproduire.	Vérifier		TP. 1 (can. G) TP. 2 (can. D)	-11,2 dBv ± 1,5 dB	

4. Vérification de l'indicateur de niveau

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	REC/ PAUSE	Appliquer un signal de 315 Hz/-10 dBv (316 mV) aux bornes d'entrée de ligne.	Volume de la commande de niveau d'enregistrement	TP. 1 (can. G) TP. 2 (can. D)	Vérifier que les indicateurs de niveau "0 dB" s'allument dans la limite de -11,2 dBv ± 2 dB du niveau de sortie du signal.	

5. Réglage de AUTO BLE

- Le réglage de BLE doit être effectués que tous les autres réglages ont été complétés.
- Ce réglage doit être effectué dans le mode d'essai.
- Passage au mode d'essai.
- Appuyer sur l'interrupteur POWER et court-circuiter JP901 et JP902.

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	-	Régler dans le mode d'essai.	-	-	-	
2.		Appuyer sur la touche NORMAL SPEED du panneau avant.	Indicateur de niveau.	VR501	Régler afin que 0 dB clignote sur l'indicateur de niveau. *1	Réglage 400 Hz
3.		Appuyer sur la touche HIGH SPEED.		VR502	Régler afin que 0 dB clignote sur l'indicateur de niveau. *1	Réglage 10 kHz

*1 Aprés le réglage de 2 et 3, la sortie LINE OUT devient -16 dBv ± 1 dB.

- Sortie du mode d'essai.
  Appuyer sur la touche RESET (COUNTER) sur le côté platine I.

7. AJUSTES

7.1 AJUSTE MECANICO

- Este ajuste debe efectuarse en el modo de prueba.
- Cómo poner el modo de prueba

Cortocircuite JP901 y JP902 (TP14) durante un corto tiempo. (La unidad se pondrá en el MODO DE PRUEBA).

Mode	Operatión	Indicación
Reproducción a doble velocidad para el lado I	La reproducción a doble velocidad se selecciona pulsando la tecla FAST (lado I o II) durante la reproducción del lado I.	Contador del lado II : 4 HI-SPEED se ilumina.
Reproducción a doble velocidad para el lado II	La reproducción a doble velocidad se selecciona pulsando la tecla FAST (lado I o II) durante la reproducción del lado II.	Contador del lado II : 5 HI-SPEED se ilumina.

Para cancelar el modo de prueba, pulse la tecla COUNTER RESET del lado I o desconecte la alimentación de la unidad.

1. Ajuste y verificación de la velocidad de cinta

No.	Platina	Modo	Cinta de prueba	Puntos de ajuste	Especificaciones/valores nominales (frecuencia de reproducción)	Comentarios
1	I	PLAY (velocidad normal)	STD-301 (3 kHz)	Después de reproducir durante 1 minuto.		
2		PLAY (velocidad doble)		Verificar	6000 Hz ± 600 Hz	
3				VR851	3000 Hz ± 5 Hz	
4	II	PLAY (velocidad normal)		Después de verificar, reproduzca en la platina II.		
5		PLAY (velocidad doble)		Después de reproducir durante 1 minuto.		
6		PLAY (velocidad normal)		VR802	Dentro de ± 10 Hz del valor medido en el paso 2 (platina I).	
7				VR801	3000 Hz ± 5 Hz	

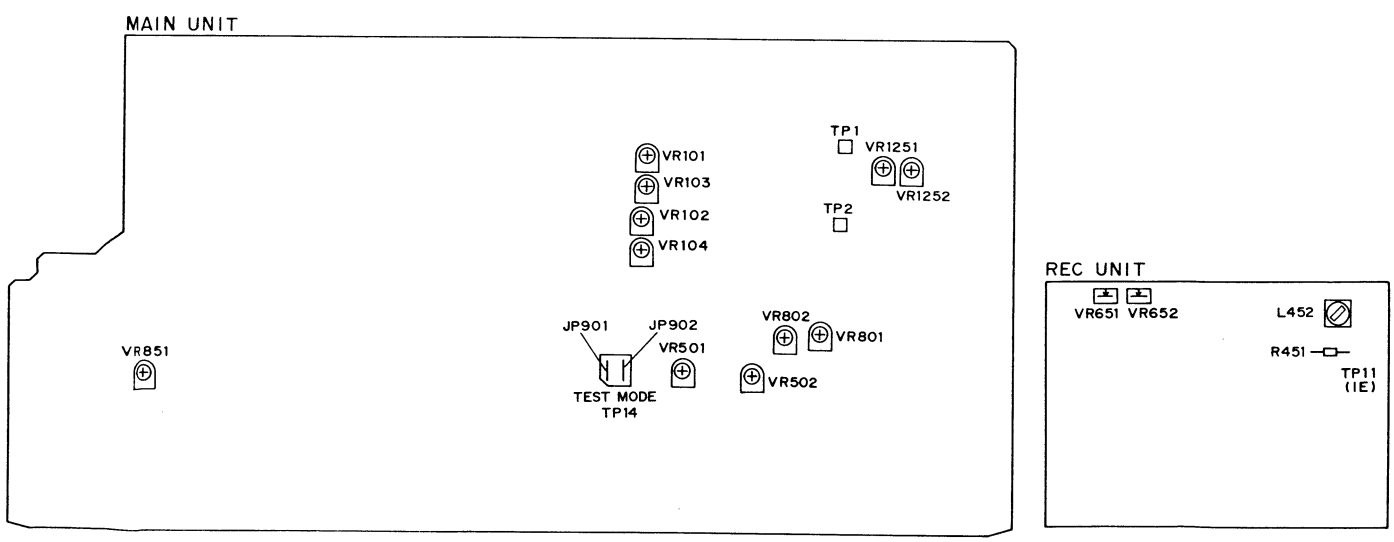


Figura 7–1 Puntos de ajuste

7.2 AJUSTES ELÉCTRICOS

Condiciones de ajuste

1. Los ajustes mecánicos deben haberse completado primero.
2. La cabeza debe estar limpia y desmagnetizada.
3. Encienda la alimentación para permitir que la platina se caliente durante unos pocos minutos por lo menos antes de realizar cualquier ajuste eléctrico.
4. La señal de referencia es de 0 dBv=1 Vrms.
5. Conecte una resistencia de 50 kΩ (o entre 47k y 52 kΩ) en los terminales OUTPUT.
6. A menos que se especifique lo contrario, los conmutadores indicados más abajo deben dejarse en las posiciones indicadas.
   DOLBY NR : OFF
   TAPE SELECTOR : NORM

Cintas de prueba

STD–331B : Ajustes de reproducción (Consulte la figura 7–2)
STD–630 : Cinta virgen NORMAL
STD–620 : Cinta virgen de CrO_2
STD–610 : Cinta virgen de METAL

Lista de ajustes

Secciones de reproducción

1. Ajuste de azimut de la cabeza
2. Ajuste del nivel de reproducción

Secciones de grabación

1. Ajuste del oscillador de polarización
2. Ajuste de la polarización de grabación
3. Ajuste del nivel de grabación
4. Verificación del medidor de nivel
5. Ajuste BLE Automático

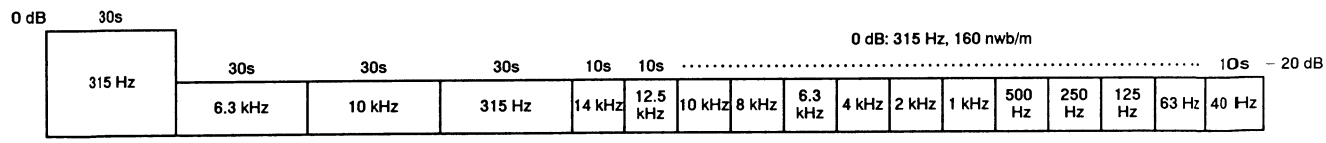


Figura 7–2 Constantes de la cinta de prueba STD–331B

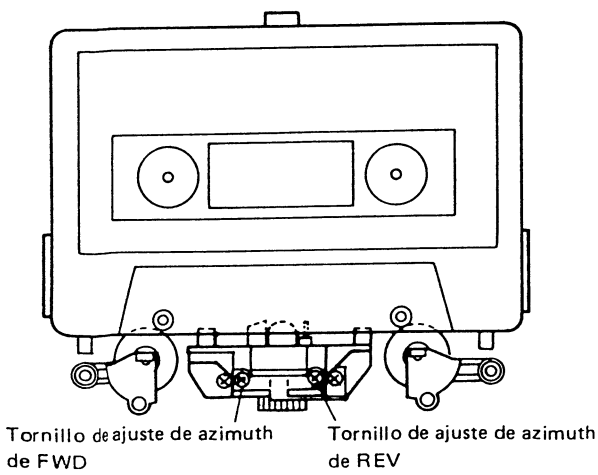


Figura 7–3 Ajuste de azimut de la cabeza

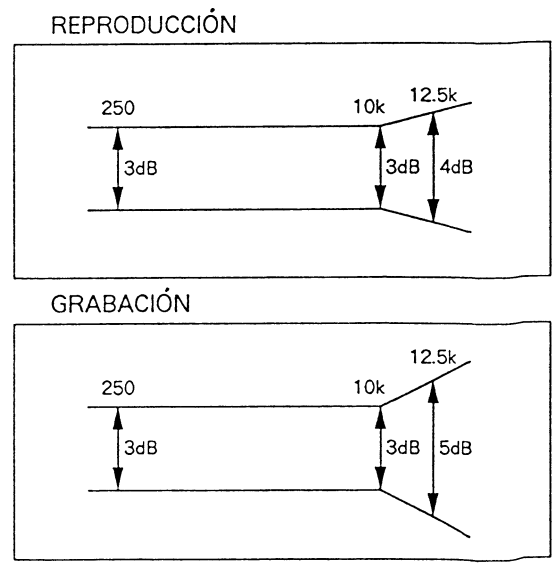


Figura 7–4 Zona permisible de respuesta de frecuencia de reproducción

SECCIÓN DE REPRODUCCIÓN

1. Ajuste del azimut de la cabeza

- Poner VR103, 104 (platina I) o VR101, 102 (platina II) en las posiciones del centro mecánico.

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	PLAY	Reproduzca la sección de 10 kHz/–20 dB de la cinta de prueba STD–331B.	Tornillo de ajuste del azimut de la cabeza. (Vea la figura 7–3)	LINE OUT	Nivel máximo de la señal de reproducción.	
2.	STOP	Bloquee el tornillo con su cierre una vez finalizado el ajuste.				

2. Ajuste del nivel de reproducción

- Este ajuste determina el nivel DOLBY NR y debe realizarse con mucho cuidado.

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste		Punto de medición	Valor de ajuste	Comentarios
1.	PLAY	Produzca la parte de 315 Hz/0 dB de la cinta de prueba STD–331B.	Platina I	VR103 (Lch) VR104 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	–10,7 dBv	
			Platina II	VR101 (Lch) VR102 (Rch)			

SECCIÓN DE GRABACIÓN

1. Ajuste del oscilador de polarización

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste		Punto de medición	Valor de ajuste	Comentarios
1.	REC	Introduzca la cinta de prueba STD–610 sin señal de entrada.	Platina II	L452	TP. 11	$105\ ^{+3}_{-0,3}$ kHz	

2. Ajuste de polarización de grabación

- Una vez finalizado el ajuste, compruebe el porcentaje de distorsión para no obtener subpolarización.

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste		Punto de medición	Valor de ajuste	Comentarios
1.	STOP	Cargue la cinta de prueba STD–630 (NORMAL).					
2.	REC	Grabe la señal de 315 Hz y 6,3 kHz a un nivel de entrada de –20 dBv y reprodúzcala.	Platina II	VR651 (Lch) VR652 (Rch)	LINE OUT	Grabe, reproduzca y ajuste repetidamente para que el nivel de la señal de reproducción de 6,3 kHz sea de +0,5 dB ± 0,5 dB cuando se compare con la señal de 315 Hz.	

3. Ajuste del nivel de grabación

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste		Punto de medición	Valor de ajuste	Comentarios
1.	REC/ PAUSE	Aplique una señal de 315 Hz/0 dBv a los terminales de entrada de línea e introduzca la cinta de prueba STD-630.	Control de nivel de grabación.		TP. 1 (Lch) TP. 2 (Rch)	-11,2 dBv	
2.	STOP	Ponga el conmutador DOLBY NR en la posición ON. (DOLBY B)					
3.	REC/ PLAY	Grabe la señal de arriba en la cinta de prueba STD-630 y reprodúzcala.	Platina II	VR1251 (Lch) VR1252 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	Grabe, reproduzca y ajuste repetidamente para que el nivel de la señal de reproducción sea de -11,2 dB.	
4.	STOP	Ponga el conmutador TAPE SELECTOR en la posición CrO2.					
5.	REC/ PLAY	Grabe la señal de arriba en la cinta de prueba STD-620 y reprodúzcala.	Verifique		TP. 1 (Lch) TP. 2 (Rch)	-11,2 dBv ± 1,5 dB	
6.	STOP	Ponga el conmutador TAPE SELECTOR en la posición METAL.					
7.	REC/ PLAY	Grabe la señal de arriba en la cinta de prueba STD-610 y reprodúzcala.	Verifique		TP. 1 (Lch) TP. 2 (Rch)	-11,2 dBv ± 1,5 dB	

4. Verificación del medidor de nivel

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	REC/ PAUSE	Aplique una señal de 315 Hz/-10 dBv (316 mV) a los terminales de entrada de línea.	Control de nivel de grabación	TP. 1 (Lch) TP. 2 (Rch)	Verifique si se encienden los medidores de nivel "0 dB" cuando el nivel de salida de la señal sea -11,2 dBv±2 dB	

5. Ajuste BLE Automático

- El ajuste BLE debe efectuarse después de haber terminado todos los otros ajustes.
- Este ajuste debe efectuarse en el modo de prueba.
- Cómo poner el modo de prueba.
- Conecte el interruptor de corriente POWER y cortocircuite JP901 y JP902.

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	-	Ponga el modo de prueba.	-	-	-	
2.		Pulse la tecla NORMAL SPEED del panel delantero.	Medidor de nivel	VR501	Ajuste de modo que parpadee 0 dB en el medidor de nivel. *1	Ajuste de 400 Hz
3.		Pulse la tecla HIGH SPEED.		VR502	Ajuste de modo que parpadee 0 dB en el medidor de nivel. *1	Ajuste de 10 kHz

*1 Después del ajuste de 2 y 3, la salida de LINE OUT pasa a ser -16 dB ± 1 dB.

- Cancelación del modo de prueba.
  Pulse la tecla RESET (COUNTER) de la platina I

8. IC DESCRIPTIONS

● PD4314A

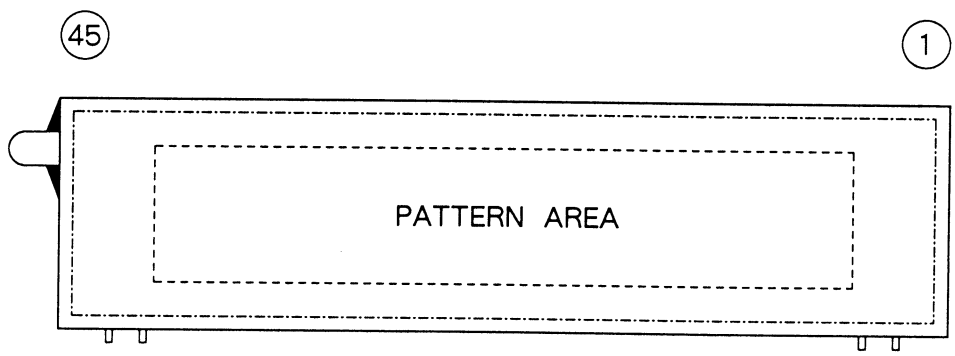
Pin No.	Symbol	I/O	Function	Active
1	S_3	O	Level scan (S_0 to S_4), key scan (S_0 to S_9) Output terminal for dynamic FL display (S_0 to S_9) (Controlled by time division)	H
2	S_2			
3	S_1			
4	S_0			
5	KEY0	I	Key scan input terminal "L": switch on	L
6	KEY1			
7	KEY2			
8	KEY3			
9	POWER OFF	I	Power off detect input terminal	H
10	REMOCON	I	Remote control input	L
11	METL	I	Lch level detection input terminal	H
12	METR	I	Rch level detection input terminal	H
13	1RMP	O	Output terminal for 1 mechanism reel motor play torque selection	H
14	1RML	O	1 mechanism reel motor REV direction drive terminal	H
15	1RMR	O	1 mechanism reel motor FWD direction drive terminal	H
16	1CPM	O	1 mechanism capstan motor drive terminal	H
17	1SLA	O	Output terminal for 1 mechanism solenoid drive	H
18	1SLB	O	Output terminal for holding 1 mechanism solenoid reducing electricity	H
19	2SLA	O	Output terminal for 2 mechanism solenoid drive	H
20	2SLB	O	Output terminal for holding 2 mechanism solenoid reducing electricity	H
21	2SEN	I	Input terminal for 2 mechanism sensing pulse	
22	1SEN	I	Input terminal for 1 mechanism sensing pulse	
23	$\overline{\text{LINEM}}$	O	Line out mute terminal	L
24	RECM	O	Recording amplifier mute output terminal	H
25	2RMP	O	Output terminal for 2 mechanism reel motor play torque selection	H
26	2RML	O	2 mechanism reel motor REV direction drive terminal	H
27	2RMR	O	2 mechanism reel motor FWD direction drive terminal	H
28	2CPM	O	2 mechanism capstan motor drive terminal	H
29	OSC (400/10k)	O	Square wave (400 Hz/10 kHz) output terminal for AUTO-BLE	
30	OSC1		Crystal connect terminal	
31	OSC2			
32	GNDD	–	GND	–

Pin No.	Symbol	I/O	Function	Active
33		–	Not used	–
34				
35	CLK	O	(*)	H
36	DATA	O	DATA output terminal for extension IC	H
37	1×1	O	1 mechanism constant-speed/double-speed selection output terminal "L": double speed	H
38	2×1	O	2 mechanism constant-speed/double-speed selection output terminal "L": double speed	H
39	$\overline{\text{RESET}}$	I	System reset terminal	L
40	T_0	O	Grid output terminal for dynamic FL display	H
41	T_1			
42	T_2			
43	T_3			
44	T_4			
45	T_5			
46	T_6			
47	T_7			
48	T_8			
49	T_9			
50	T_{10}			
51	BIAS	O	Bias oscillation. ON: "H", OFF: "L"	H
52	TO CD	O	CD control signal output terminal	H
53	DEC	O	Dolby NR IC. Decode: "H", Encode: "L"	H
54	2PB	O	2 mechanism playback: "H"	H
55	BLE ON	O	When AUTO-BLE: "H", sets line in, mute ON, dolby NR OFF and test signal ON.	H
56		–	Not used	–
57	V_{PRE}	–	Output buffer power terminal of FL controller/driver inside microprocessor.	–
58	S_9	O	(*1)	H
59	S_8			
60	S_7			
61	S_6			
62	S_5			
63	S_4			
64	VC5V	–	Power terminal +5V	–

(*) When CT-W650R, clock output terminal for extension IC
In CT-W550R, refast is set to become output terminal for meter amplifier time constant (recovery time) selection. "H": short.
(*1) Same function as in Pin No. 1 to Pin No. 4.

● BU2040

Pin No.	Symbol	I/O	Function	Active
1	GND	–	GND	–
2	DATA	I	DATA input terminal	H
3	CLK	I	Clock input terminal	H
4	LS0	O	Output terminal for REC level correction (4 bit)	H
5	LS1			
6	LS2			
7	LS3			
8	ES0	O	Output terminal for REC EQ correction (4 bit)	H
9	ES1			
10	ES2			
11	ES3			
12	BS0	O	Output terminal for bias intensity correction when REC (2 bit)	H
13	BS1			
14	FSEL	O	When AUTO–BLE, output selection of 400 Hz and 10 kHz. "H": 10 kHz.	H
15	REFAST	O	Output terminal for meter amplifier time constant (recovery time) selection. "H": short	H
16	Vcc	–	Power terminal +5V	–

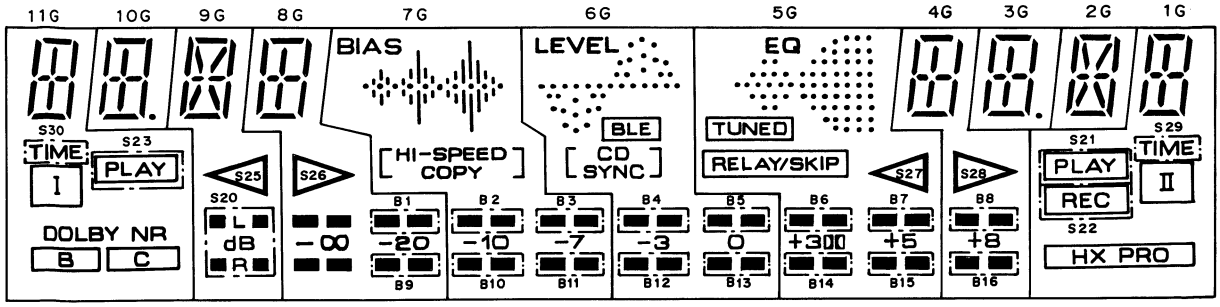


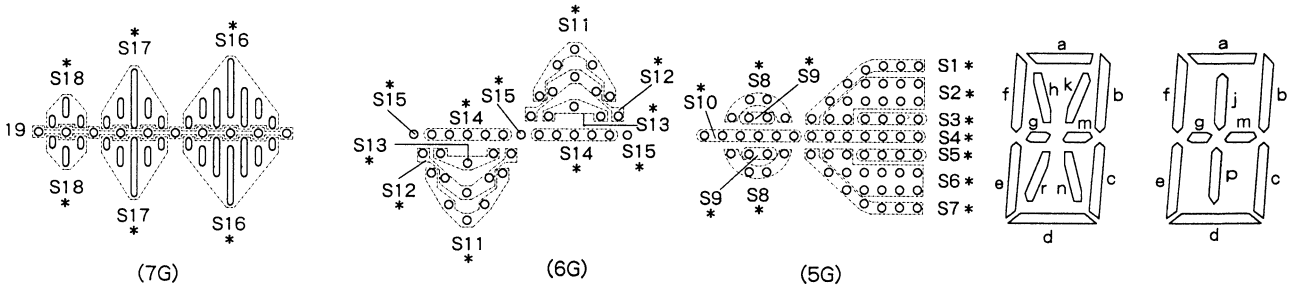
PIN CONNECTION

PIN NO.	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23
CONNECTION	F2	F2	NP	P1	P2	P6	P12	P11	P7	P8	P9	P5	P3	P4	P14	P10	P19	P20	P21	P22	P15	P28	P23

PIN NO.	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	P16	P13	P25	P24	P27	P26	P17	P18	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	NP	F1	F1

Note: 1) F1, F2 ····· Filament
2) NP····· No pin
3) 1G to 11G ··· Grid





ANODE CONNECTION

	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	a	a	a	a	S18 *	S14 *	S4 *	a	a	a	a
P2	b	b	b	b	S17 *	S13 *	S2 *	b	b	b	b
P3	c	c	c	c	S16 *	S12 *	S1 *	c	c	c	c
P4	d	d	d	d	BIAS	S11 *	TUNED	d	d	d	d
P5	e	e	e	e	HI-SPEED	LEVEL	PLAY/SKIP	e	e	e	e
P6	f	f	f	f	COPY	CD SYNC	◀ (S27)	f	f	f	f
P7	m	m	m, g	m	B2	B4	B6	m	m	m, g	m
P8	S30	Dp, 2	k, r	▶ (S26)	B10	B12	B14	(S28) ▶	Dp, l	k, r	S29
P9	S23	j, p	n	B1	B3	B5	B7	B8	j, p	n	S21
P10	S24	–	◀ (S25)	B9	B11	B13	B15	B16	–	–	S22
P11	g	g	–	g	–	–	–	g	g	–	g
P12	j, p	–	h	j, p	–	–	S9 *	j, p	–	h	j, p
P13	–	–	–	–	–	–	S8 *	–	–	–	–
P14	l	–	–	–	S19 *	S15 *	S10 *	–	–	–	II
P15	–	–	–	–	–	BLE	–	–	–	–	–
P16	–	–	–	–	–	–	EQ	–	–	–	–
P17	–	–	–	–	–	–	–	–	–	–	TWIN
P18	–	–	–	–	–	–	–	–	–	–	HX PRO
P19	–	–	S20	−∞ −20	−10 −7	−3 0	+3 +5	+8	–	–	–
P20	DOLBY NR	–	–	–	–	–	–	–	–	–	–
P21	B	–	–	–	–	–	–	–	–	–	–
P22	C	–	–	–	–	–	–	–	–	–	–
P23	–	–	–	–	–	–	H	–	–	–	–
P24	–	–	–	–	–	–	S6 *	–	–	–	–
P25	–	–	–	–	–	–	S7 *	–	–	–	–
P26	–	–	–	–	–	–	S3 *	–	–	–	–
P27	–	–	–	–	–	–	S5 *	–	–	–	–
P28	–	–	–	–	–	–	M–	–	–	–	–

* CT–W650R only

9. FOR CT–W650R/HEM, HB AND SD TYPES

CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

The CT–W650R/HEM, HB and SD types are the same as the CT–W650R/KUC type with the exception of the following sections.

Mark	Symbol & Description	Part No.				Remarks
		CT–W650R/ KUC type	CT–W650R/ HEM type	CT–W650R/ HB type	CT–W650R/ SD type	
	Display unit	Non supply	Non supply	Non supply	Non supply	
⚠	Strain relief	CM–22	CM–22B	CM–22B	CM–22B	
⚠	FU1, FU2 Fuse (1.5A)	REK1001	.....	.....	.....	
⚠	FU1, FU2 Fuse (1.6A)	.....	REK–102	REK–102	REK–102	
⚠	AC Power cord	RDG1010	PDG1003	PDG1036	PDG1013	
⚠	Power transformer (AC120V)	RTT1165	.....	.....	.....	
⚠	Power transformer (AC220–230/230–240V)	.....	RTT1166	RTT1166	.....	
⚠	Power transformer (AC110/120–127/220/240V)	.....	.....	.....	RTT1167	
⚠	Voltage selector	.....	.....	.....	PSB1002	
	FL lens	RAH1830	RAH1833	RAH1833	RAH1830	
	Operating instructions (English)	RRB1091	.....	RRB1091	RRB1091	
	Operating instructions (English/French/German/Italian/Dutch/ Swedish/Spanish/Portuguese)	.....	RRE1040	.....	.....	
	Packing case	RHG1293	RHG1268	RHG1268	RHG1268	

DISPLAY UNIT

The display units (for CT–W650R/HEM, HB types) are the same as the display unit (for CT–W650R/KUC type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		CT–W650R/ KUC type	CT–W650R/ HEM and HB types	
	V1501 FL tube	RAW1082	RAW1074	

10. FOR CT–W550R/KUC, HEM, HB, HPW, SD AND CT–W550R–S/HEWM TYPES

CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

The CT–W550R/KUC, HEM, HB, HPW, SD and CT–W550R–S/HEWM types are the same as the CT–W650R/KUC type with the exception of the following sections.

Mark	Symbol & Description	Part No.						
		CT–W650R/ KUC type	CT–W550R/ KUC type	CT–W550R/ HEM type	CT–W550R/ HB type	CT–W550R/ HPW type	CT–W550R/ SD type	CT–W550R–S /HEWM type
	Main unit	Non supply	Non supply	Non supply	Non supply	Non supply	Non supply	Non supply
	Display unit	Non supply	Non supply	Non supply	Non supply	Non supply	Non supply	Non supply
	Volume unit	Non supply	Non supply	Non supply	Non supply	Non supply	Non supply	Non supply
	TRANS SEC unit	Non supply	Non supply	Non supply	Non supply	Non supply	Non supply	Non supply
	Operate 1 unit	Non supply	Non supply	Non supply	Non supply	Non supply	Non supply	Non supply
	Operate 2 unit	Non supply	Non supply	Non supply	Non supply	Non supply	Non supply	Non supply
	Dolby SW unit	Non supply	Non supply	Non supply	Non supply	Non supply	Non supply	Non supply
⚠	Strain relief	CM–22	CM–22	CM–22B	CM–22B	CM–22B	CM–22B	CM–22B
⚠	AC Power cord	RDG1010	RDG1010	PDG1003	PDG1036	PDG1006	PDG1013	PDG1003
⚠	FU1, FU2 Fuse (1.5A)	REK1001	REK1001	.....	.....	.....	.....	.....
⚠	FU1, FU2 Fuse (1.6A)	.....	.....	REK–102	REK–102	REK–102	REK–102	REK–102
⚠	Power transformer (AC120V)	RTT1165	RTT1165	.....	.....	.....	.....	.....
⚠	Power transformer (AC220–230/230–240V)	.....	.....	RTT1166	RTT1166	RTT1166	.....	RTT1166
⚠	Power transformer (AC110/120–127/220/240V)	.....	.....	.....	.....	.....	RTT1167	.....
⚠	Voltage selector	.....	.....	.....	.....	.....	PSB1002	.....
	BLE knob	RAC1601	.....	.....	.....	.....	.....	.....
	BLE mold	RAH1729	.....	.....	.....	.....	.....	.....
	Stabilizer panel	RAH1483	.....	.....	.....	.....	.....	.....
	Door pocket (L)	RAH1828	RAH1831	RAH1831	RAH1831	RAH1831	RAH1831	RAH1834
	Door pocket (R)	RAH1829	RAH1832	RAH1832	RAH1832	RAH1832	RAH1832	RAH1835
	Stabilizer (B)	REB1085	.....	.....	.....	.....	.....	.....
	Stopper	VEC1061	.....	VEC1061	VEC1061	VEC1061	VEC1061	VEC1061
	Insulator	VNK1095	.....	VNK1095	VNK1095	VNK1095	VNK1095	VNK1095
	Leg assembly	.....	PXA1201	.....	.....	.....	.....	.....
	Operation knob (B)	.....	RAC1424	RAC1424	RAC1424	RAC1424	RAC1424	RAC1484
	REC mold	.....	RAH1611	RAH1611	RAH1611	RAH1611	RAH1611	RAH1623
	FL lens	RAH1830	RAH1830	RAH1833	RAH1833	RAH1830	RAH1830	RAH1833
	Knob (B)	RAC1414	RAC1414	RAC1414	RAC1414	RAC1414	RAC1414	RAC1492
	VR knob (B)	RAC1421	RAC1421	RAC1421	RAC1421	RAC1421	RAC1421	RAC1483
	Counter knob	RAC1426	RAC1426	RAC1426	RAC1426	RAC1426	RAC1426	RAC1606

Mark	Symbol & Description	Part No.						
		CT-W650R/ KUC type	CT-W550R/ KUC type	CT-W550R/ HEM type	CT-W550R/ HB type	CT-W550R/ HPW type	CT-W550R/ SD type	CT-W550R-S /HEWM type
	Power knob	RAC1427	RAC1427	RAC1427	RAC1427	RAC1427	RAC1427	RAC1489
	Slide knob	RAC1428	RAC1428	RAC1428	RAC1428	RAC1428	RAC1428	RAC1486
	VR knob (A)	RAC1430	RAC1430	RAC1430	RAC1430	RAC1430	RAC1430	RAC1485
	Operation knob (C)	RAC1475	RAC1475	RAC1475	RAC1475	RAC1475	RAC1475	RAC1493
	Operation knob (A)	RAC1479	RAC1479	RAC1479	RAC1479	RAC1479	RAC1479	RAC1488
	Eject knob	RAC1480	RAC1480	RAC1480	RAC1480	RAC1480	RAC1480	RAC1491
	REC mold (L)	RAH1608	RAH1608	RAH1608	RAH1608	RAH1608	RAH1608	RAH1645
	Bonnet	RXX1396	RXX1396	RXX1396	RXX1396	RXX1396	RXX1396	RXX1397
	Front panel assembly	RXX1374	RXX1372	RXX1372	RXX1372	RXX1372	RXX1372	RXX1373
	Packing case	RHG1293	RHG1292	RHG1269	RHG1269	RHG1269	RHG1269	RHG1270
	Operating instructions (English)	RRB1091	RRB1091	.....	RRB1091	RRB1091	RRB1091	.....
	Operating instructions (English/French/German/Italian/Dutch/ Swedish/Spanish/Portuguese)	.....	.....	RRE1040	.....	.....	.....	RRE1040
	Operating instructions (Spanish)	.....	.....	.....	.....	.....	RRD1097	.....

Note: TRANS SEC unit, Operate 2 unit, Dolby SW unit no different parts to be supplied.

MAIN UNIT

The main units (for CT–W550R/KUC, HEM, HB, HPW, SD and CT–W550R–S/HEWM types) are the same as the main unit (for CT–W650R/KUC type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		CT–W650R/ KUC type	CT–W550R/KUC, HEM, HB, HPW, SD and CT–W550R–S/ HEWM types	
	IC503	TC4066BP	.....	
	IC504	BA15218N	.....	
	IC510	BU2040	.....	
	D922	1SS254	.....	
	Q253, Q254	2SD2144S	.....	
	Q255, Q1251–Q1264	DTC114TS	.....	
	Q501	DTA124ES	.....	
	Q502	DTC124ES	.....	
	C501	CGCYX223K25	.....	
	C502	CGCYX222K25	.....	
	C503	CGCYX104K25	.....	
	C504	CGCYX103K25	.....	
	C505, C506	CEAS010M50	.....	
	C507	CKCYF473Z50	.....	
	R269, R270	RD1/6PM681J	.....	
	R512, R514	RD1/6PM223J	.....	
	R517	RA5T223J	.....	
	R518	RA7T223J	.....	
	R519–R521, R549, R1273	RD1/6PM103J	.....	
	R522	RD1/6PM104J	.....	
	R523	RD1/6PM823J	.....	
	R524	RD1/6PM683J	.....	
	R531	RD1/6PM223J	.....	
	R1257, R1258	RD1/6PM272J	RD1/6PM751J	
	R1259	RD1/6PM822J	.....	
	R1260	RD1/6PM822J	.....	
	R1261, R1262	RD1/6PM392J	.....	
	R1263, R1264	RD1/6PM202J	.....	
	R1265, R1266	RD1/6PM102J	.....	
	R1267	RD1/6PM165J	RD1/6PM244J	
	R1268	RD1/6PM824J	.....	
	R1269	RD1/6PM434J	.....	
	R1270	RD1/6PM224J	.....	
	R1271	RD1/6PM472J	RD1/6PM332J	
	R1272	RD1/6PM432J	.....	
	VR501, VR502	RCP1046	.....	

DISPLAY UNIT

The display units (for CT–W550R/KUC, HEM, HB, HPW, SD and CT–W550R–S/HEWM types) are the same as the display unit (for CT–W650R/KUC type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		CT–W650R/ KUC type	CT–W550R/KUC, HEM, HB, HPW, SD and CT–W550R–S/ HEWM types	
	V1501 FL tube	RAW1082	RAW1083	

VOLUME UNIT

The volume units (for CT–W550R/KUC, HEM, HB, HPW, SD and CT–W550R–S/HEWM types) are the same as the volume unit (for CT–W650R/KUC type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		CT–W650R/ KUC type	CT–W550R/KUC, HEM, HB, HPW, SD and CT–W550R–S/ HEWM types	
	IC2001	BA15218	.....	
	C2001, C2002	CKPUYB681K50	.....	
	C2003, C2004, C2011, C2012	CEAS010M50	.....	
	C2005, C2006	CEAS100M50	.....	
	C2007, C2008	CKPUYB101K50	.....	
	C2017	CKCYF473Z50	.....	
	R2001, R2002	RD1/6PM222J	.....	
	R2003, R2004	RD1/6PM103J	.....	
	R2005–R2008, R2017, R2018	RD1/6PM104J	.....	
	R2009, R2010	RD1/6PM181J	.....	
	R2011, R2012	RD1/6PM333J	.....	
	JA2001, JA2002	RKN1003	.....	

OPERATE 2 UNIT

The operate 2 units (for CT–W550R/KUC, HEM, HB, HPW, SD and CT–W550R–S/HEWM types) are the same as the operate 2 unit (for CT–W650R/KUC type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		CT–W650R/ KUC type	CT–W550R/KUC, HEM, HB, HPW, SD and CT–W550R–S/ HEWM types	
	S1409	RSG1033	.....	

11. SPECIFICATIONS

System ..... 4-track, 2-channel stereo
Heads ..... "Hard permalloy" recording/playback head × 1
"Hard permalloy" playback head × 1
"Ferrite" erasing head × 1
Motors ..... DC servo motor × 2
DC reel motor × 2
Wow and Flutter
U.K. and European models ..... No more than 0.055% (WRMS)
No more than ±0.16% (DIN)
Other models ..... No more than 0.10% (WRMS)
Fast Winding Time ..... Approx. 90 seconds (C-60 tape)
Frequency Response (at −20 dB recording level)
[CT-W650R]
Metal Tape ..... 20 to 19,000 Hz
Chrome Tape ..... 20 to 18,000 Hz
Normal Tape ..... 20 to 17,000 Hz
[CT-W550R]
Metal Tape ..... 20 to 19,000 Hz
Chrome Tape ..... 20 to 18,000 Hz
Normal Tape ..... 20 to 17,000 Hz
Signal-to-Noise Ratio
Dolby NR off ..... More than 57 dB
Noise Reduction Effect
Dolby B-type NR ON ..... More than 10 dB (at 5 kHz)
Dolby C-type NR ON ..... More than 19 dB (at 5 kHz)
Harmonic Distortion ..... No more than 0.8 % (at 0 dB)
Input (Sensitivity)
LINE (INPUT) ..... 63 mV (Input impedance 68 kΩ)
MIC (CT-W650R only) ..... 0.4 mV
Output (Reference level)
LINE (OUTPUT) ..... 316 mV (Output impedance 3.1 kΩ)
Headphones (PHONES) ..... 0.25 mW (Output impedence 8 Ω)

Miscellaneous

Power requirements
U.S., Canadian model ..... AC 120 V, 60 Hz
U.K. and Australian models ..... AC 230—240 Volts ~, 50/60 Hz
European model ..... AC 220—230 Volts ~, 50/60 Hz
Multi-voltage model ..... AC 110 V/120 V—127 V/220 V/240 V (switchable), 50/60 Hz
Power consumption
[CT-W650R]
U.S., Canadian model ..... 26 W
Other models ..... 26 W
[CT-W550R]
U.S., Canadian model ..... 26 W
Other models ..... 26 W
Dimensions
[CT-W550R U.S., Canadian model]
..... 420 (W) ×123 (H) ×268 (D) mm
16-9/16 (W) ×4-13/16 (H) ×10-9/16 (D) in.
[Other models]
..... 420 (W) ×128 (H) ×268 (D) mm
16-9/16 (W) ×5-1/16 (H) ×10-9/16 (D) in.
Weight
[CT-W650R] ..... 4.7 kg (10 lbs. 6 oz.)
[CT-W550R] ..... 4.6 kg (10 lbs. 2 oz.)

Accessories

Operating instructions 1
Connection cord with pin plugs 2
Remote control cord 1
CD·DECK SYNCHRO control cord 1

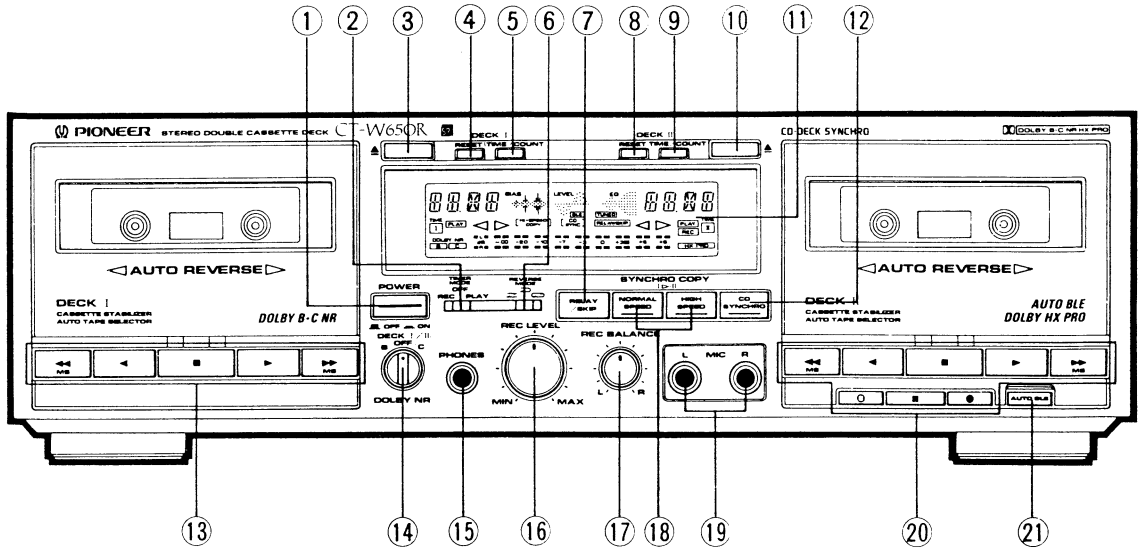
Features

- AUTO BLE tuning system (CT-W650R only)
- DOLBY HX PRO recording function
- DOLBY B/C type NR
- Music search over ±15 selections
- Synchronized copy start
- High-speed and normal-speed copy (Deck I → Deck II)
- Relay playback/blank skip
- 4-digit electronic tape/time counter
- Michrophone jacks (CT-W650R only)
- Peak level meter with peak-hold function
- MPX FILTER (Interlocks with Dolby NR switch)
- Automatic recording mute
- Automatic tape selectors
- System remote control available
- Timer recording
- Timer playback (Automatic relay on)
- CD ·DECK SYNCHRO function
- Headphones jack
- Automatic reverse

NOTE:
Specifications and design subject to possible modifications without notice due to improvements.

12. PANEL FACILITIES

The illustration shows model CT-W650R.



① Power switch (POWER ▬ ON / ▬ OFF)

② Timer mode switch (TIMER MODE/REC/ OFF/PLAY)

③ Deck I eject button (⏏)

- If the tape is moving (recording, playback, tape winding, etc.), press the stop (■) button before pressing this button.

NOTE:
If the power is turned off while the tape is moving, the cassette door may remain locked. In this case, turn the power on before pressing the eject (⏏) button.

④ Deck I counter reset button (RESET)

⑤ Deck I counter mode button (TIME/COUNT)

⑥ Reverse mode switch (REVERSE MODE)

⑦ Relay/Skip button (RELAY/SKIP)

⑧ Deck II counter reset button (RESET)

⑨ Deck II counter mode button (TIME/COUNT)

⑩ Deck II eject button (⏏)

- If the tape is moving (recording, playback, tape winding, etc.), press the stop (■) button before pressing this button.

NOTE:
If the power is turned off while the tape is moving, the cassette door may remain locked. In this case, turn the power on before pressing the eject (⏏) button.

⑪ Function display

⑫ CD · DECK SYNCHRO recording button (CD SYNCHRO)

⑬ Deck I operation buttons

- ◀◀ Fast reverse/Music search
- ▶▶ Fast forward/Music search
- ▶ Forward playback
- ■ Stop
- ◀ Reverse playback

⑭ Dolby* NR switch (DOLBY NR B/OFF/C)

*

- *Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.*
- *"DOLBY", the double-D symbol ◻◻ and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.*

⑮ Headphones jack (PHONES)

⑯ Recording level control (REC LEVEL)

⑰ Recording balance control (REC BALANCE)

⑱ Synchro copy buttons (SYNCHRO COPY I ▷ II, NORMAL SPEED/HIGH SPEED)

- NORMAL SPEED: Copying at normal speed.
- HIGH SPEED: Copying at twice normal speed.

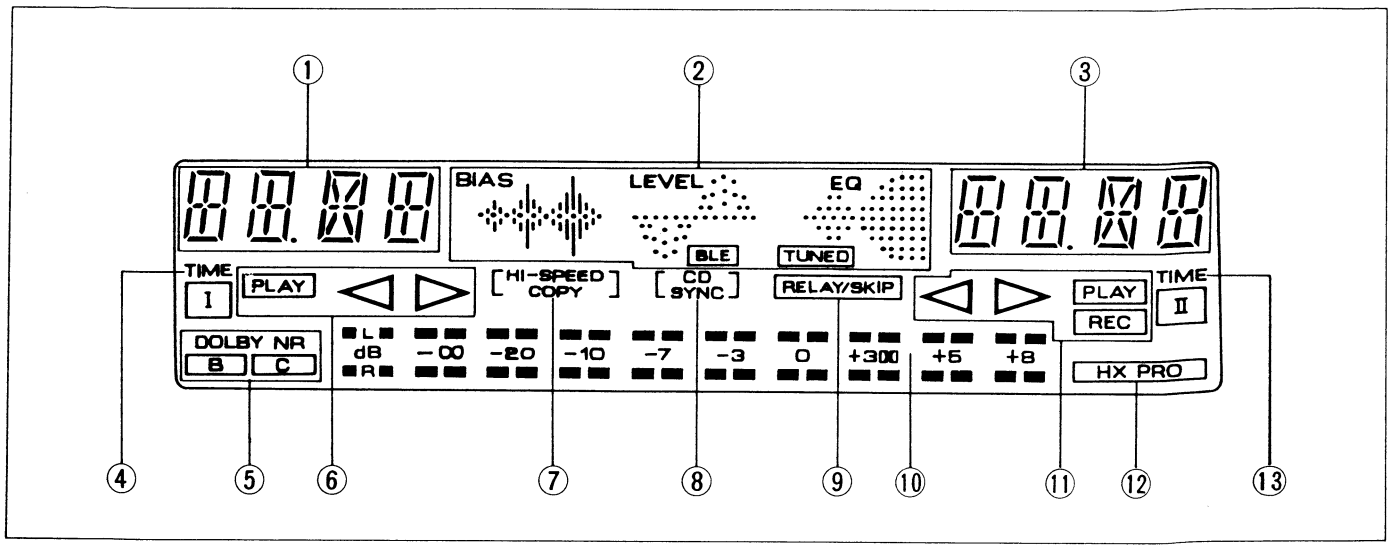
⑲ Microphone jacks (MIC L,R, CT-W650R only)

⑳ Deck II operation buttons

- ◀◀ Fast reverse/Music search
- ▶▶ Fast forward/Music search
- ▶ Forward playback
- ■ Stop
- ◀ Reverse playback
- O Recording mute
- II Pause
- ● Recording

㉑ Deck II AUTO BLE button (CT-W650R only)

FUNCTION DISPLAY



① Deck I counter indicator

Normally the tape number or time counter is displayed.
Flashes for 4 seconds after the power is turned on.

② AUTO BLE indicator (CT-W650R only)

③ Deck II counter indicator

Normally the tape number or time counter is displayed (see page 9).
Flashes for 4 seconds after the power is turned on.
During AUTO BLE tuning, indicates BIAS, LEVEL, EQ, or Err.

④ Deck I TIME counter indicator

Lights during time counter mode.

⑤ DOLBY B/C NR indicator

⑥ Deck I tape transport mode indicators

⑦ Copy indicators

COPY: Copying at normal speed.
HI-SPEED COPY: Copying at twice normal speed.

⑧ CD·DECK SYNCHRO indicator (CD SYNC)

Lights when CD·DECK SYNCHRO recording from a CD player is being carried out.

⑨ RELAY/SKIP indicator

Lights when the RELAY/SKIP button is pressed to enter relay play-back/blank skip mode.

⑩ Level meter

Holds peak for about 1.2 seconds.
The ▯▯ mark beside the +3dB mark indicates the Dolby NR system reference level.

⑪ Deck II tape transport mode indicators

⑫ Dolby HX Pro indicator (HX PRO)

⑬ Deck II TIME counter indicator

Lights during time counter mode.